

RIR

POWER ELECTRONICS LIMITED

SHORT FORM CATALOGUE



**Leaders in Power Semiconductors,
Modules, Power Rectifiers and
Battery Charger**

www.ruttonsha.com

ABOUT RIR

1. RIR Power Electronics Ltd. is a Global Landmark in Semiconductors having more than two and a half decades of Technological Association with International Rectifier, USA, for the manufacturing of Power Semiconductors. RIR is having the ascendancy of IR Technology as well as access to Developmental & Technological expertise of Silicon Power Corporation, USA.
2. We have High Power Semiconductor manufacturing setup with the capacity to manufacture the products ranging up-to 9000V and 6000A.
3. Today, we stand firm as one of the leading international player in Semiconductor Industry with an In-House facility viz. Die Fabrication, Soldering, Encapsulation & Testing Spread over a total built up area of 40,000Sq. Ft. in Gujarat, India.
4. We have the capacity to execute Bulk orders and have been successfully exporting to various parts of the world including USA and Europe.
5. Our Symbol of Goodwill include clientele both the Government and Semi - Government leading private organizations and OEMs across the nation and Globally. We have got ourselves registered as approved supplier with –
 - Integral/Rail Coach Factories
 - DGQA (Ministry of Defense)
 - Nuclear Thermal Power Corporation
 - Naval Dockyard
 - Mormugao Port Trust
 - Indian Railways

AN OPERATION FOR YEARS TOGETHER

A STORY OF SUCCESS

- 1969 Incorporation of the Company
- 1986 Initial Public Offer (IPO)
- 1999 Setting up of Export Oriented Unit (EOU)
- 2000 Collaboration with Silicon Power Corporation USA for manufacturing High Power Devices
ISO 9001:2000 Certification
- 2007 Recognition as Part I source for supply of Rectifiers to EMU Coached of Indian Railways
- 2009 Merger of Orient Semiconductors Pvt. Ltd. into Ruttonsha International Rectifier Ltd.
- 2011 Awarded 'Export House' Status by Ministry of Commerce and Industry, Govt. of India
ISO 9001:2008 Certification
- 2019 Became Distributor of StarPower Semiconductor Ltd. for IGBT Modules.
- 2021 Ruttonsha International Rectifier Ltd acquired 100% stake in
Visicon Power Electronics Private Limited for manufacturing Silicon Carbide (SiC) Wafers.
- 2023 Ruttonsha International Rectifier Limited name changed to RIR Power Electronics Limited

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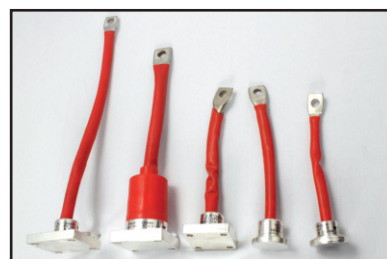
STUD / FLAT SQUARE BASE TYPE

RECTIFIER DIODE

Type	V _{RRM}	I _{FAV}	@T _C	I _R	I _{FSM}	V _{FM}	@I _{FM}	V _{TO}	r _T	T _J max	R _{thJC}	R _{thcs}	Case Type
	V	A	°C	mA	A	V	A	V	mΩ	°C	°C/W	°C/W	
12FM-FMR	400-1600	12	140	1	250	1.3	37	0.8	6.8	175	2	0.6	1
16FM-FMR	400-1600	16	140	1	300	1.2	50	0.8	6.8	175	1.6	0.6	1
25FM-FMR	400-1600	25	120	4	356	1.3	78	0.8	6.8	175	1.5	0.5	1
25HM-HMR	400-1600	25	140	5	400	1.35	78	0.86	3	175	1.5	0.5	2A, 2B
40HM-HMR	400-1600	40	140	5	500	1.35	125	0.69	3.7	175	1	0.5	2A, 2B
61HM-HMR	400-1600	60	140	5	860	1.35	188	0.79	2.33	175	0.55	0.25	3A, 3B
70HM-HMR	400-1600	70	140	5	1000	1.35	220	0.79	2.33	175	0.5	0.25	3A, 3B
100LM-LMR-LF-LFR	400-1600	100	130	15	2300	1.4	314	0.76	1.41	175	0.4	0.1/0.07	4A, 4B
150LM-LMR-LF-LFR	400-1600	150	130	15	3600	1.4	471	0.76	1.41	175	0.25	0.1/0.07	4A, 4B
200LM-LMR-LF-LFR	400-1600	200	125	15	4400	1.4	628	0.85	0.85	175	0.17	0.08	4A, 4B
200UM-UMR-UF-UFR	400-1600	200	130	20	4300	1.35	628	0.85	0.85	175	0.2	0.08/0.05	5A, 5B
250UM-UMR-UF-UFR	400-1600	250	130	20	4500	1.3	785	0.76	0.55	175	0.18	0.08/0.05	5A, 5B
300UM-UMR-UF-UFR	400-1600	300	130	20	5000	1.4	942	0.76	0.55	175	0.12	0.08/0.05	5A, 5B
320UM-UMR-UF-UFR	400-1600	320	130	20	5500	1.4	1005	0.86	0.15	175	0.12	0.08/0.02	5A, 5B
321UM-UMR-UF-UFR	400-2700	320	130	20	5500	1.65	1005	0.72	0.53	175	0.12	0.08/0.02	6, 5C
350UF-UFR	400-1600	350	125	20	6000	1.2	1050	0.86	0.15	175	0.15	0.02	5B
351-352UF-UFR	400-1600	351	125	20	6000	1.2	1050	0.86	0.15	175	0.15	0.02	5C/5D
400UM-UMR-UF-UFR	400-2400	400	120	20	8250	1.62	1500	0.8	0.55	175	0.11	0.04	5A, 5B
450V-VR-VF-VFR	200-2000	450	75	35	7500	1.66	1000	0.88	0.78	175	0.11	0.04	7A, 7B
600V-VR-VF-VFR	400-2000	600	92	35	13000	1.31	1500	0.78	0.35	175	0.1	0.04	7A, 7B

FAST RECOVERY DIODE

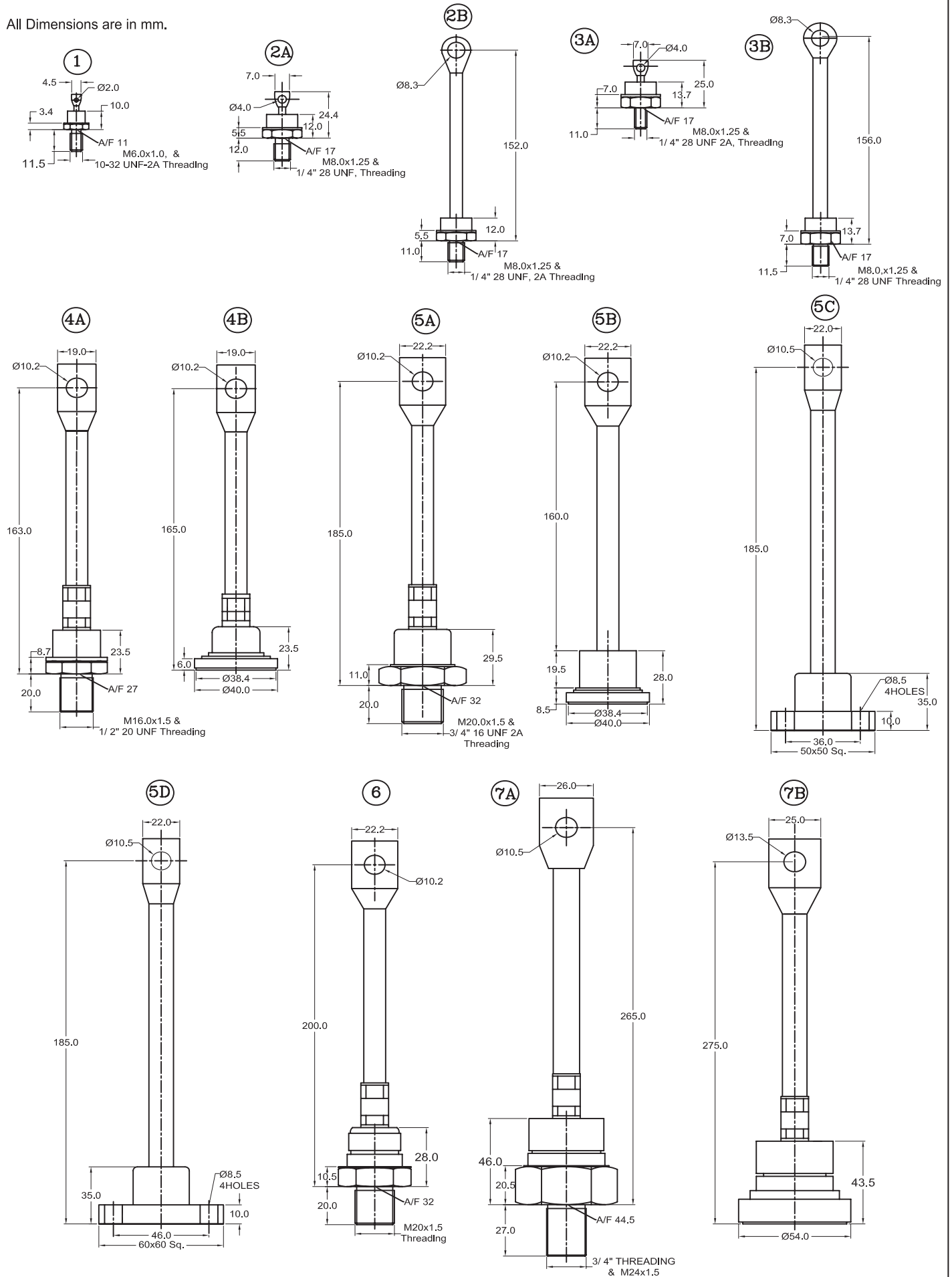
Type	V _{RRM}	I _{FAV}	@T _C	I _{FSM}	V _{FM}	@I _{FM}	t _{rr}	@I _{FM}	di/dt	V _{TO}	r _T	T _J max	R _{thJC}	R _{thcs}	Case Type
	V	A	°C	A	V	A	nS	A	A/μS	V	mΩ	°C	°C/W	°C/W	
12FL-FLR	100-1000	12	100	145	1.4	38	500	1	25	1.2	35	150	2	0.5	1
16FL-FLR	100-1000	16	100	180	1.4	50	500	1	25	1.2	20	150	1.6	0.5	1
40HFL-HFLR	100-1000	40	75	400	1.95	125	500	1	100	1.08	20	150	0.6	0.25	2A, 2B
70HFL-HFLR	100-1000	70	75	700	1.85	220	500	1	100	1.085	10	150	0.36	0.25	3A, 3B
100LML-LMLR	100-1000	100	75	1800	1.6	314	500	350	25	1.36	2.55	150	0.35	0.15	4A
150LML-LMLR	100-1000	150	75	2850	1.55	471	500	350	25	1	4	150	0.2	0.15	4A
200LML-LMLR	200-600	200	125	3650	1.55	628	500	350	25	1	1.1	150	0.1	0.07	4A



SILICON RECTIFIERS

All Dimensions are in mm.

PHYSICAL DIMENSIONS



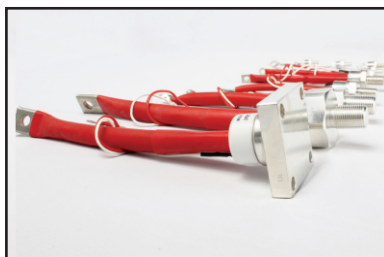
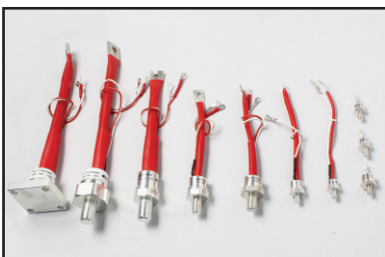
STUD / SQUARE BASE TYPE

PHASE CONTROL THYRISTOR

Type	V _{DRM} V _{RRM}	I _{T(AV)}	@T _c	I _{TSM} (10ms)	V _{TM}	@I _{TM}	V _{TO} @T _J =125°C	r _T	I _{GT}	V _{GT}	dv/dt	di/dt	R _{thJC}	R _{thcs}	Case Type
	V	A	°C	A	V	A	V	mΩ	mA	V	V / μs	A / μs	°C/W	°C/W	
16RIA	100-1600	16	85	285	1.75	50	0.99	11.73	60	2	300	100	1.15	0.35	1
25RIA	100-1600	25	85	350	1.7	78	0.99	11.73	60	2	300	100	0.75	0.35	1
41RIA	100-1600	40	94	1050	1.65	125	1.02	4.78	100	2.5	500	100	0.4	0.25	2
51RIA	100-1600	50	94	1200	1.6	157	1.02	4.78	100	2.5	500	100	0.35	0.25	2
71RIA	100-1600	70	80	1200	1.8	220	0.97	4.1	100	2.5	500	100	0.35	0.1	3
81RIA	100-1600	80	85	1597	1.6	251	0.85	3.5	3	2.5	500	100	0.3	0.08	3
81RK	100-1600	80	90	1730	1.8	251	1.21	2.4	150	3	500	100	0.26	0.8	4
111RK	100-1600	110	90	2270	1.52	350	0.9	1.79	150	3	500	100	0.2	0.08	4
125RK	200-1600	125	85	2570	1.55	400	0.9	1.79	150	3	500	100	0.19	0.08	4
155RK	200-1600	150	90	2700	1.8	471	1.14	1.7	150	3	500	100	0.11	0.04	5
175RK	200-1600	170	85	3900	1.75	533	1.08	1.8	150	3	500	100	0.105	0.04	5
235RK	200-1600	230	85	4800	1.55	722	0.92	0.81	150	3	500	100	0.1	0.04	5
255RK	200-1600	250	75	5570	1.9	785	0.98	0.95	200	3	500	100	0.105	0.03	6
280RK	200-600	280	85	6600	1.28	880	0.84	0.5	150	3	500	100	0.105	0.04	5
305RK	200-1600	300	75	6730	1.66	942	0.97	0.74	200	3	500	100	0.1	0.03	6
355RK	200-1600	350	75	7550	1.55	1099	0.91	0.8	200	3	500	100	0.08	0.03	6/7
380RK	200-600	380	75	10500	1.4	1193	0.91	0.58	200	3	500	100	0.08	0.03	6/7
400RK	200-1600	400	75	9500	1.55	1255	0.9	0.4	200	3	500	100	0.1	0.03	7
450RKS	200-1600	450	85	11500	1.66	1400	1.05	0.2	200	3	500	100	0.073	0.01	7
500RKS	200-1600	500	85	12000	1.6	1570	1.06	0.02	250	3	500	100	0.073	0.01	7

INVERTER GRADE THYRISTOR

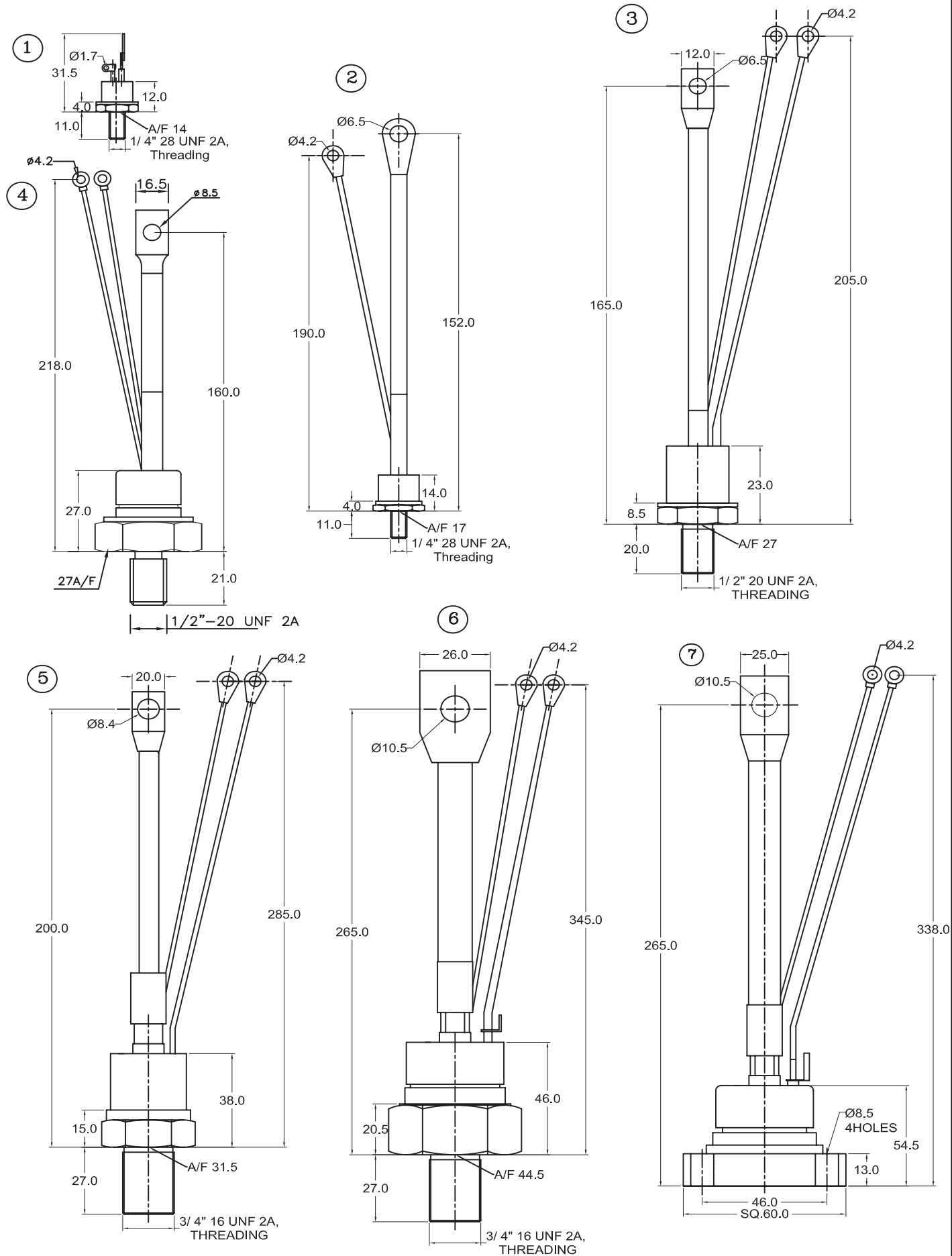
Type	V _{DRM} V _{RRM}	I _{T(AV)}	T _c	I _T (RSM)	I _{TSM} (10ms)	V _{TM}	@I _{TM}	t _q	@I _{TM2}	@di/dt	V _{TO} @T _J =125°C	r _T	I _{GT}	V _{GT}	dv/dt	di/dt	R _{thJC}	R _{thcs}	Case Type
	V	A	°C	A	A	V	A	μs	A	A/μs	V	mΩ	mA	V	V/μs	A/μs	°C/W	°C/W	
41RIA..F	100-1200	40	94	63	700	2.4	125	40	50	10	1	7.9	100	2.5	500	100	0.4	0.25	2
51RIA..F	100-1200	50	94	79	1000	2	157	40	50	10	1	7	100	2.5	500	100	0.35	0.25	2
85RK..F	400-1200	85	85	134	2450	2.15	300	10to30	300	20	1.46	4	200	3	500	100	0.195	0.08	4
175RK..F	400-1200	175	85	275	4680	2.07	600	15to25	300	20	1.55	0.87	200	3	500	100	0.105	0.04	5
205RK..F	400-1200	205	85	320	5260	1.72	600	20to30	300	20	1.17	0.92	200	3	500	100	0.105	0.04	5
300RK..F	400-1200	300	65	471	7950	2.16	1225	10to30	550	40	1.44	0.57	200	3	500	100	0.1	0.03	6



SILICON CONTROLLED RECTIFIERS

PHYSICAL DIMENSIONS

All Dimensions are in mm.



CAPSULE TYPE

RECTIFIER DIODE

Type	V _{RRM}	I _{FAV}	@T _C	I _{FSM} (10ms)	V _{FM} (T _J =T _J max)	@I _{FM}	V _{TO} @ @T _J max	r _T	T _J max	R _{thJ-hs}	Case Type
	V	A	°C	A	V	A	V	mΩ	°C	°C/W	
R450A..C	200-1600	450	95	6050	1.8	1500	0.85	0.7	160	0.09	1
R650A..C	200-1600	650	55	6050	2.08	1500	0.95	0.75	180	0.09	1
R800A..C	200-1600	800	55	8250	1.86	1930	0.8	0.55	190	0.09	1
R920E..C	2600-3400	920	55	5600	1.38	1000	0.7	0.7	160	0.05	2
R1100E..C	200-1600	1100	55	10500	1.44	1500	0.84	0.4	160	0.05	2
R1200E..C	200-1600	1220	55	10500	1.44	1500	0.84	0.6	180	0.038	2
R1400E..C	200-1600	1400	55	13000	1.31	1500	0.78	0.35	160	0.038	2
R1600E..C	200-800	1600	55	16000	1.55	3000	0.75	0.25	160	0.038	2
R750B..C	3200-4400	750	85	10000	1.45	1000	0.8	1	160	0.037	3
R1200B..C	400-3600	1180	55	13600	1.66	2000	0.9	0.7	160	0.031	3
R1300B..C	400-2600	1300	55	15000	1.6	4000	0.86	0.5	160	0.033	3
R1600B..C	2000-3000	1600	55	16600	1.64	3000	0.83	0.43	180	0.031	3
R2000B..C	200-2000	2000	55	16600	1.64	3000	0.83	0.24	180	0.031	3
R900K..C	4000-6000	900	60	9200	1.76	1000	1.15	0.7	160	0.023	4
R1700K..C	3200-4200	1700	55	22000	1.15	1000	1.15	0.36	160	0.023	4
R1800K..C	400-3000	1800	55	25000	1.65	3800	0.85	0.37	160	0.023	4
R2000K..C	2000-4500	2080	55	20200	1.81	4000	0.89	0.33	160	0.02	4
R3000K..C	1200-2500	3000	55	31000	1.41	4000	0.76	0.13	160	0.02	4
R3200K..C	800-2200	3270	55	30400	1.47	6000	0.73	0.12	175	0.022	4
R4500K..C	200-600	4540	55	44000	1.02	3000	0.765	0.0524	150	0.022	4
R5800K..C	200-600	5800	55	70000	0.95	4000	0.7	0.04	160	0.017	4
R2000L-M..C	5000-6000	2000	55	21800	1.45	3000	0.96	0.42	160	0.017	5,6
R4500L-M..C	200-1400	4500	55	52000	1.05	4000	0.65	0.07	160	0.016	5,6
R6000Q..C	3200-4000	6000	55	62000	1.25	4000	0.758	0.097	160	0.008	7
R7000Q..C	200-600	7000	55	60000	0.95	3000	0.645	0.044	175	0.0095	7
R4950Q-R..C	1600-3000	4950	55	60000	1.01	2000	0.8	0.1	175	0.012	7,8
R5200R..C	2400-3600	5200	55	57000	1.4	6000	0.9	0.07	160	0.024	8
R5000S..C	4500-5000	5000	55	55000	1.2	2000	0.8	0.18	160	0.007	9

RECTIFIER DIODE - CAPSULE TYPE FOR WELDING APPLICATION

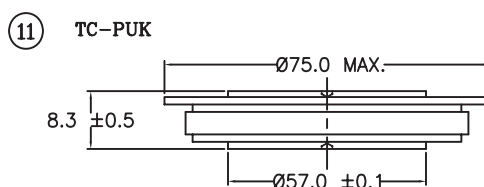
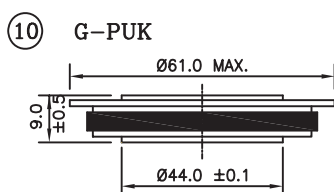
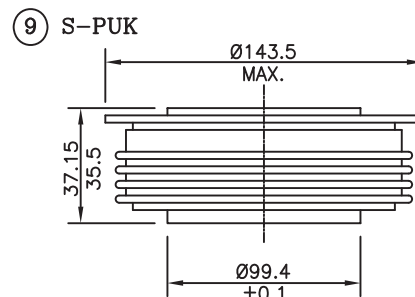
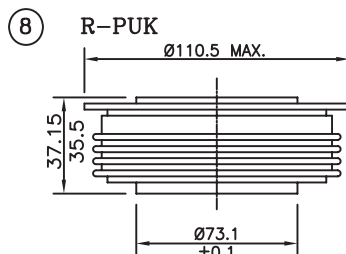
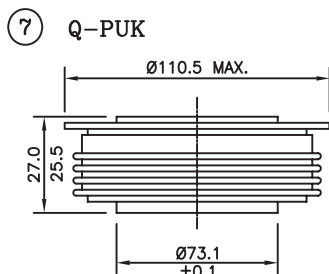
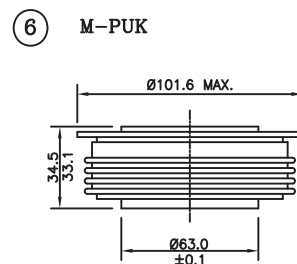
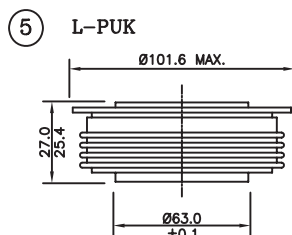
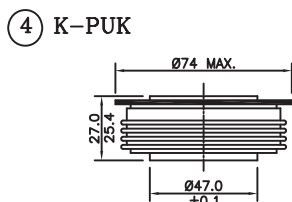
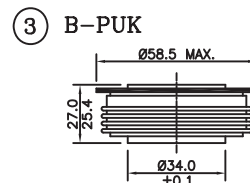
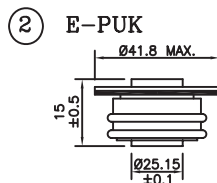
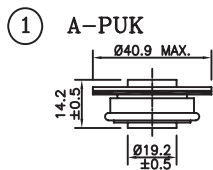
Type	V _{RRM}	I _{FAV}	@T _C	I _{FSM} (10ms)	V _{FM} (T _J =T _J max)	@I _{FM}	V _{TO} @ @T _J max	r _T	T _J max	R _{thJ-hs}	Case Type
	V	A	°C	A	V	A	V	mΩ	°C	°C/W	
R4000G..C	200-600	3200	85	60000	0.95	4000	0.7	0.04	180	0.03	10
R6000G..C	200-600	6000	85	60000	0.95	4000	0.7	0.04	180	0.03	10
R7100G..C	400	7110	85	55000	0.74	5000	0.7	0.026	170	0.01	10
R12000TC..C	400-600	12000	55	85000	0.87	4500	0.7	0.15	180	0.0095	11

CAPSULE TYPE

FAST RECOVERY RECTIFIER DIODE

Type	V_{RRM}	$I_{FAV}@T_C$ 55°C	I_{FSM} (10ms)	V_F @ I_F @ T_J max	t_{rr}	@ I_{FM}	di/dt	V_{TO} @ T_J max	r_T	T_J max	R_{thj-hs}	Case Type
	V	A	A	V	A	μs	A/μS	V	mΩ	°C	°C/W	
R430A..F	400-2500	430	5770	2.25	1100	2.9	750	25	1.14	0.9	125	1
R600E..F	400-2200	600	8320	2.97	1885	3.2	1000	25	1.36	0.7	125	2
R760E..F	400-1600	760	9000	1.7	1500	2	550	40	1.13	0.4	125	2
R920B..F	1800-3000	920	13000	2.26	1500	4.5	1000	100	1.51	0.8	150	3
R1000B..F	1800-3000	1000	14000	1.9	1000	4.5	1000	100	1.51	0.45	150	3
R990K..F	3000-4500	990	19000	2.9	2000	5	1000	100	1.5	0.8	125	4
R1200K..F	1700-3000	1200	20000	1.75	1000	4	1000	100	1.15	0.8	150	4
R1500K..F	1700-2500	1500	21560	2.1	4000	5	1000	60	1.15	0.265	125	4
R1650K..F	1800-3000	1650	22000	2.6	4000	5	1000	100	1.31	0.4	150	4
R2000L..F	2000-4500	1995	23600	2.95	2100	7	1000	100	2.35	0.265	150	5
R2800M..F	1800-2500	2837	35000	1.41	3000	7	1000	60	0.9	0.17	150	6
R3000Q..F	1600-2400	3000	31800	1.5	3000	7	1000	60	0.9	0.24	150	7
R3200Q..F	3000-4500	3230	20000	2	3000	7	1000	100	1.25	0.15	150	7

CAPSULE DIODE



ALL DIMENSIONS ARE IN mm.

CAPSULE TYPE

PHASE CONTROL THYRISTOR

Type	V_{DRM} V_{RRM}	$I_{T(AV)}$	@T _C	I_{TSM} (10ms)	V _{TM}	@I _{TM}	V_{TO} r_T @T _J =125°C	I_{GT}	V _{GT}	dv/dt	di/dt	R _{thj-hs}	Case Type
	V	A	°C	A	V	A	V mΩ	mA	V	V/μS	A/μS	K/W	
340PA	1200-1800	323	85	5700	1.9	1000	1 0.85	150	3	500	100	0.074	1
400PA	200-1700	410	55	5700	1.69	880	0.92 1.21	150	3	500	100	0.08	1
450PA	200-1700	450	55	5700	1.69	880	0.92 0.92	150	3	500	100	0.08	1
500PA	200-1200	500	55	7850	1.36	1050	0.84 0.74	150	3	500	100	0.08	1
500PE	2000-3000	510	55	4500	2.8	1000	1.1 1.6	100	3	500	100	0.056	2
550PE	800-1600	550	85	9000	1.65	1500	0.93 0.45	250	3	500	125	0.059	2
600PE	200-1600	650	55	9000	1.9	1730	0.91 0.78	200	3	500	100	0.05	2
601PE	1500-3000	600	55	7500	2.1	1500	1.14 0.8	200	3	500	100	0.05	2
700PE	400-2200	720	55	9000	1.96	1810	0.91 0.85	200	3	500	100	0.04	2
900PE	200-600	960	55	12500	1.58	2900	0.85 0.41	200	3	500	100	0.04	2
470PB	380-430	470	70	6400	1.78	500	1 1.5	300	3	1000	100	0.36	3
750PB	2500-4500	750	55	5100	2.2	500	1.04 0.7	200	3	500	100	0.04	3
760PB	800-1600	760	83	13000	1.65	2400	0.92 0.3	200	3	500	125	0.04	3
900PB	1200-2200	910	55	15700	1.8	2000	1 0.66	200	3	500	100	0.031	3
1000PB	400-1800	1000	55	17800	1.62	2000	0.98 0.52	200	3	500	100	0.031	3
1200PB	400-1200	1200	55	17800	1.55	2000	1.06 0.28	200	3	500	100	0.031	3
1300PB	400-600	1350	55	24400	1.31	3600	0.8 0.26	200	3	500	100	0.031	3
550PK	5500-7000	550	70	5500	2	500	1.3 2	200	3	500	100	0.025	4
800PK	4100-4500	800	70	8000	2	1000	1.14 0.8	200	1.4	500	100	0.025	4
880PK	4000-4500	880	55	7700	2.98	1830	1.3 0.92	300	3	1000	300	0.024	4
1160PK	3400-4200	1160	55	14500	2.15	1830	1.1 0.45	300	3	500	100	0.022	4
1300PK	2800-3600	1300	55	18000	1.7	1000	1.1 0.4	250	3	500	100	0.023	4
1400PK	1200-2800	1473	55	20000	1.8	3000	0.95 0.28	250	3	500	100	0.024	4
1450PK	1200-2400	1450	55	19400	1.3	1000	1 0.28	250	3	500	100	0.024	4
1500PK	2000-3000	1500	55	23600	1.3	1000	1.02 0.25	250	3	500	100	0.024	4
1650PK	1200-2400	1650	55	20000	1.73	4000	0.91 0.21	250	3	500	100	0.024	4
1700PK	600-2200	1745	55	33500	1.85	4000	0.93 0.17	250	3	500	100	0.024	4
1950PK	800-1600	1950	55	26250	1.4	3000	0.94 0.12	250	3	500	100	0.024	4
2000PK	400-1800	2000	58	36000	1.4	3000	0.82 0.12	250	3	500	100	0.024	4
2200PK	200-600	2310	55	42500	1.44	4000	0.83 0.11	250	3	500	100	0.021	4
2500PK	200-800	2500	55	42500	1.25	4000	0.83 0.08	250	3	500	100	0.021	4
2510PK	200-600	2510	85	46000	1.1	4000	0.75 0.072	250	1.5	1000	200	0.0184	4
1500PL-PM	1600-3800	1500	55	25000	2.17	3200	1.04 0.45	250	3	500	100	0.017	5, 6
1650PL-PM	1600-3600	1650	55	25000	2.17	3220	1.04 0.36	250	3	500	100	0.017	5, 6
1660PL-PM	3000-3600	1660	55	23000	2.17	3220	1.04 0.35	250	3	500	100	0.017	5, 6
1700PL-PM	2400-3000	1700	55	30000	2.08	3220	1.05 0.33	250	3	500	100	0.017	5, 6

CAPSULE TYPE

PHASE CONTROL THYRISTOR

Type	V_{DRM} V_{RRM}	$I_{\text{T(AV)}}$	@T _C	I_{TSM} (10ms)	V_{TM}	@I _{TM}	V_{TO} @T _J =125°C	r_{T}	I _{GT}	V _{GT}	dv/dt	di/dt	R _{thj-hs}	Case Type
	V	A	°C	A	V	A	V	mΩ	mA	V	V/μS	A/μS	K/W	
2200PL-PM	1200-2000	2200	55	26400	1.7	4000	0.96	0.17	250	3	500	100	0.017	5, 6
2500PL-PM	1200-1800	2500	55	37000	1.2	2000	0.88	0.12	250	3	500	100	0.017	5, 6
2630PL/PM	2000-2800	2630	60	35350	1.4	2000	0.97	0.18	250	3	1500	150	0.013	5, 6
2000PQ-PR	3500-4500	2000	55	24400	1.85	2000	1.35	0.32	250	3	500	100	0.012	7, 8
2200PQ-PR	2800-3800	2200	55	27000	1.71	2000	1.16	0.28	250	3	500	100	0.012	7, 8
2400PQ-PR	1800-2800	2400	55	32800	1.35	2000	0.78	0.28	250	3	500	100	0.012	7, 8
2500PQ-PR	2400-3600	2500	55	27000	1.71	2000	1.06	0.25	250	3	500	100	0.012	7, 8
2800PQ-PR	1800-3600	2824	55	40000	1.87	4000	0.97	0.16	250	3	500	100	0.011	7, 8
3000PQ-PR	2000-3500	3000	55	52000	1.55	2000	0.88	0.14	250	3	500	100	0.012	7, 8
3800PQ/PR	1400-1800	3810	55	50000	1.16	3000	0.87	0.085	200	3	1000	150	0.011	7, 8
4000PQ-PR	600-1400	4000	55	60000	1.1	3000	0.85	0.06	250	3	500	100	0.012	7, 8
3500PQ/PR	3000-4200	3476	55	52000	1.87	5000	0.97	0.18	300	3	500	100	0.008	7, 8
6000PQ	400-600	6012	55	65000	0.95	4000	0.853	0.029	300	3	1000	200	0.011	7
7000PQ	200-400	6974	55	65000	0.95	3000	0.853	0.029	300	3	1000	200	0.011	7
2500PU	3500-4500	2500	55	24400	1.85	2000	1.35	0.35	300	3	500	100	0.008	9
3000PU	4500-5200	2960	55	36000	2.1	4000	1.23	0.24	300	3	500	100	0.008	9
3500PU	2200-3200	3476	55	52000	1.87	5000	0.97	0.18	300	3	500	100	0.008	9
3740PU	2200-2800	3740	70	60000	1.23	3000	0.95	0.1	300	3	500	100	0.008	9
4400PU	2000-3200	4400	55	64000	1.4	4000	0.9	0.1	300	3	500	100	0.008	9
3000PS	3000-5200	3000	55	54000	1.7	3000	0.81	0.34	300	3	500	100	0.007	10
3700PS	4500-5000	3700	55	50000	2	4000	1	0.19	300	3.5	500	100	0.007	10
3900PS	3500-4500	3900	55	37500	1.9	2000	1.15	0.15	300	4	500	100	0.007	10
4400PS	2700-3200	4400	55	56000	1.5	4000	0.94	0.12	300	4	500	100	0.007	10
5000PS	1600-2800	5000	55	60000	1.3	4000	0.94	0.09	300	5	500	100	0.007	10
2930PS	7000-8000	2930	55	67000	3	4000	1.24	0.44	300	4	2000	300	0.007	10
5500PS/PSS	1600-2800	5500	70	75000	1.3	4000	0.86	0.073	300	5	1000	300	0.008	10, 11
6100PS/PSS	1200-2000	6100	70	94000	1.08	3000	0.9	0.05	400	3	1000	500	0.005	10, 11
5900PV (125mm)	2000-3000	5900	55	75000	1.55	4000	0.8	0.15	300	4	1000	100	0.0047	12



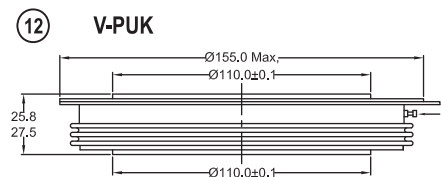
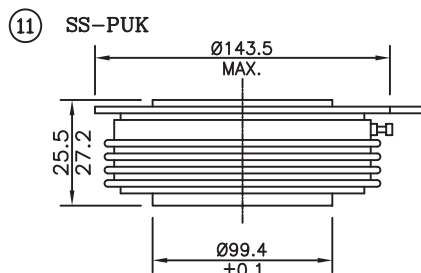
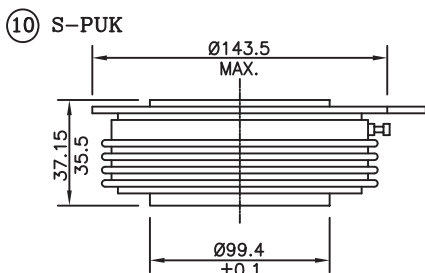
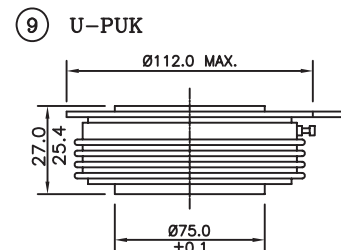
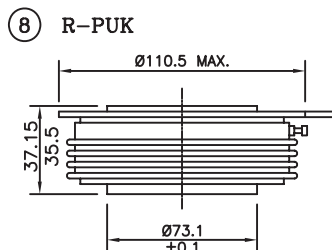
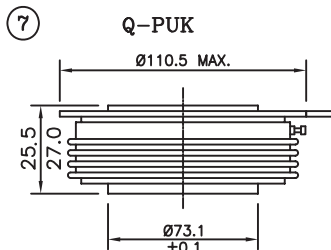
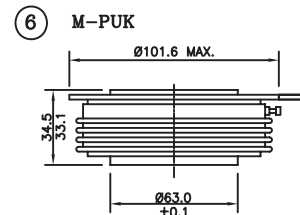
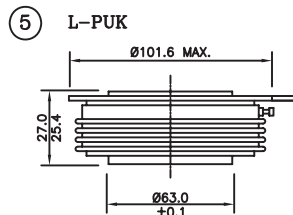
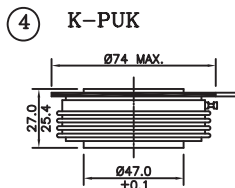
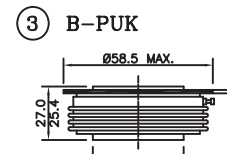
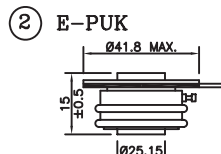
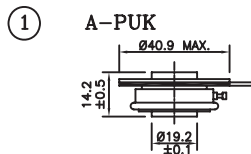
CAPSULE TYPE

INVERTER GRADE THYRISTOR

Type	V_{DRM} V_{RRM}	$I_{T(AV)}$	T_c	I_{TSM} (10ms)	V_{TM}	@ I_{TM}	t_q	@ I_{TM2}	@ di/dt	V_{TO} @ $T_J=125^\circ C$	r_T	I_{GT}	V_{GT}	dv/dt	di/dt	R_{thJS}	Case Type
	V	A	$^\circ C$	A	V	A	μs	A	A/ μs	V	m Ω	mA	V	V/ μs	A/ μs	K/W	
330PA..F	200-1200	330	55	4680	2.07	600	15-30	300	20	1.55	1.3	150	3	500	100	0.08	1
370PA..F	200-1200	370	55	4900	1.8	600	10-20	300	20	1.4	0.99	150	3	500	100	0.08	1
620PE..F	200-1200	620	55	7950	2.16	1255	10-30	300	20	1.44	0.94	150	3	500	100	0.04	2
750PB..F	800-1400	750	55	9000	2.21	1000	55	1000	25	1.03	0.7	150	3	500	100	0.04	3
878PB..F	1600-2000	878	55	7500	2.12	1400	70	1000	60	1.447	0.48	300	3	200	1000	0.032	3
930PB..F	800-1200	930	55	9000	2.9	2000	25	1000	60	1.5	0.15	150	3	500	100	0.04	3
1050PK..F	1400-2000	1050	55	12000	2.1	1000	40-45	1000	25	1.57	0.4	20	3	500	100	0.025	4
1125PK..F	1400-2000	1125	65	20000	2.1	100	30-50	1000	25	1.54	0.258	200	3	500	100	0.023	4
1200PK..F	1400-2100	1200	55	13000	1.7	1000	40-60	1000	25	1.31	0.35	200	3	500	100	0.025	4
1350PK..F	1400-2100	1350	65	20000	1.45	1000	40-60	1000	25	1.2	0.23	200	3	500	100	0.023	4
1450PK..F	600-1200	1446	55	20000	1.7	2000	20-35	1000	60	1.3	0.22	200	3	500	100	0.023	4
2600PR..F	1400-2500	2600	55	38000	1.55	2000	60-80	1000	25	1.31	0.14	200	3	500	100	0.012	8
3300PR..F	600-1200	3370	55	43900	1.54	4000	15-25	4000	60	1.35	0.064	200	3	500	100	0.011	9

CAPSULE THYRISTOR

ALL DIMENSIONS ARE IN mm.



POWER MODULES

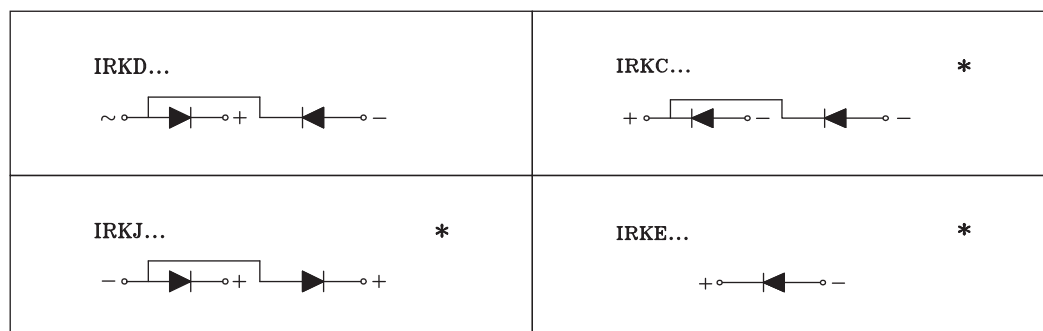
DIODE – DIODE MODULES

Type	$I_{F(AV)}$	@ T_C	V_{RRM} RANGE	I_{FSM} (10ms)	V_{FM}	@ I_{FM}	V_o ($T_J = T_{J,max}$)	r_T	R_{thJC}	R_{thCS}	T_J max	Case Type
	A	°C	V	A	V	A	V	mΩ	°C/W	°C/W	°C	
IRK-41	40	85	400 to 2200	850	1.65	126	0.88	5.9	0.23	0.1	135	1
IRK-56	55	100	400 to 2200	1600	1.35	173	0.71	3.76	0.325	0.1	135	1
IRK-71	70	100	400 to 2200	1790	1.3	220	0.61	2.8	0.285	0.1	135	1
IRK-91	90	100	400 to 2200	2020	1.3	283	0.66	1.81	0.22	0.1	135	1
IRK-105	105	87	400 to 2200	2020	1.34	330	0.66	1.81	0.22	0.1	135	1
IRK-166	165	100	400 to 2600	4000	1.57	518	0.7	1.69	0.2	0.035	135	2
IRK-196	195	100	400 to 2600	4750	1.32	612	0.75	0.92	0.2	0.035	135	2
IRK-236	230	100	400 to 2600	6540	1.26	722	0.79	0.64	0.17	0.035	135	2
IRK-250	250	100	400 to 2400	7015	1.29	785	0.79	0.63	0.16	0.02	135	3
IRK-270	270	100	400 to 2400	8920	1.48	848	0.74	0.94	0.125	0.02	135	3
IRK-320	320	100	400 to 2400	10110	1.28	1005	0.69	0.59	0.125	0.02	135	3
IRK-350	350	100	400 to 2400	10110	1.25	1100	0.69	0.59	0.125	0.035	135	3
IRK-570	570	100	1200 to 2600	15000	1.3	1700	0.8	0.38	0.065	0.02	135	4
IRK-700	701	100	1200 to 2200	22500	1.3	2000	0.7	0.15	0.072	0.02	135	4
IRK-1000	1000	100	400 to 3000	31000	1.41	4000	0.85	0.15	0.042	0.02	135	5
IRK-95F	95	75	400 to 600	1080	2.05	300	1.01	3.5	0.45	0.55	125	1
IRK-196F	195	100	400 to 600	4750	1.65	612	0.75	0.92	0.2	0.035	125	2

HIGH VOLTAGE DIODE MODULES

Type	$I_{F(AV)}$	@ T_C	V_{RRM} RANGE	I_{FSM} (10ms)	V_{FM}	@ I_{FM}	V_o ($T_J = T_{J,max}$)	r_T	R_{thJC}	R_{thCS}	T_J max	Case Type
	A	°C	V	A	V	A	V	mΩ	°C/W	°C/W	°C	
IRK-231	230	100	1400-2600	7015	1.29	722	0.79	0.63	0.16	0.035	135	3
IRK-320	320	100	4600-6500	7000	2.4	1570	0.95	1.1	0.068	0.02	135	4
IRK-435	435	85	3000-4200	12000	2.3	2100	0.85	0.33	0.065	0.02	135	4
IRK-800	800	85	3800-4400	23000	1.77	2512	0.9	0.37	0.025	0.008	150	5

Note : From IRK-236 to IRK-1000 modules are available in Compression bonded type



* ON REQUEST

POWER MODULES

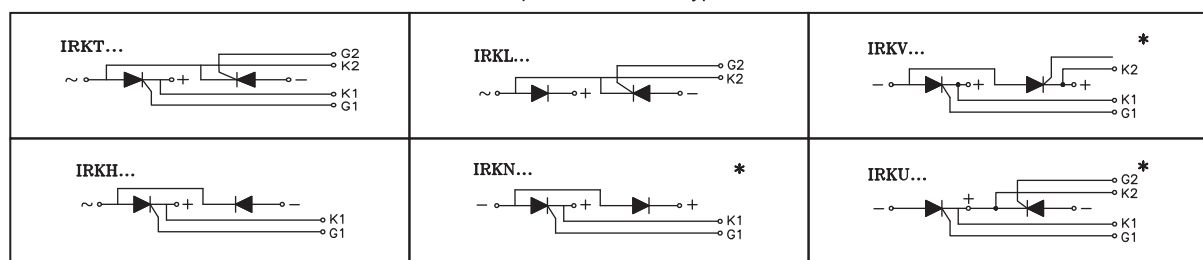
THYRISTOR - THYRISTOR & THYRISTOR DIODE

Type	$I_{T(AV)}$ $I_{F(AV)}$	@T _C	V _{RRM} RANGE	I_{TSM} / I_{FSM}	V _{TM} / V _{FM}	@I _{TM} / I _{FM}	V _O (T _J = T _J max)	r _T	V _{GT}	I _{GT}	dv/dt	di/dt	R _{thJC}	R _{thCS}	T _J max	Case Type
	A	°C	V	A	V	A	V	mΩ	V	mA	V/μs	A/μs	°C/W	°C/W	°C	
IRK-26	27	85	400 to 1600	595	1.95	85	0.91	12.4	2.5	150	500	100	0.31	0.1	125	1
IRK-41	45	85	400 to 2200	850	1.81	141	0.9	6.58	2.5	150	500	100	0.23	0.1	125	1
IRK-56	60	85	400 to 2200	1310	1.54	188	0.81	3.35	2.5	150	500	100	0.2	0.1	125	1
IRK-71	75	85	400 to 2200	1665	1.59	235	0.76	2.98	2.5	150	500	100	0.165	0.1	125	1
IRK-91	95	85	400 to 2200	1785	1.58	298	0.78	5	2.5	150	500	100	0.135	0.1	125	1
IRK-105	105	85	400 to 2200	1785	1.64	330	0.8	2.37	2.5	150	500	100	0.135	0.1	125	1
IRK-136	135	85	400 to 2200	3200	1.66	424	0.98	1.62	3	200	500	100	0.2	0.035	125	2
IRK-142	140	85	400 to 2200	4750	1.32	440	1.14	1.29	3	200	500	100	0.17	0.035	125	2
IRK-162	160	85	400 to 2600	5100	1.26	503	0.88	1.2	3	200	500	100	0.17	0.035	125	2
IRK-170	170	85	400 to 2600	5100	1.6	534	0.89	1.34	3	200	500	100	0.17	0.02	125	3
IRK-230	230	85	400 to 2600	7500	1.59	722	1.03	0.77	3	200	500	100	0.125	0.02	125	3
IRK-250	250	85	400 to 2400	8500	1.44	785	0.97	0.6	3	200	500	100	0.125	0.02	125	3
IRK-280	280	79	400 to 2400	7500	1.55	750	0.9	0.75	3	200	500	100	0.11	0.02	125	3
IRK-330	330	85	400 to 2400	8000	1.44	1036	0.8	0.45	2	200	500	100	0.11	0.02	125	3
IRK-500	540	85	400 to 2600	15000	1.6	1500	0.92	0.24	3	200	500	100	0.062	0.02	125	4
IRK-570	570	85	400 to 2600	15500	1.44	1700	0.78	0.2	3	200	500	100	0.069	0.02	125	4
IRK-650	650	85	1000-1600	14000	1.4	1978	0.85	0.1	2.5	250	500	100	0.065	0.02	125	4
IRK-715	715	85	1000 to 2200	28000	1.45	2512	0.85	0.2	2.5	250	500	100	0.05	0.02	125	5
IRK-800	800	78	1000 to 2000	28000	1.45	2512	0.85	0.2	2.5	250	500	100	0.05	0.016	125	5
IRK-1000	1000	77	1000 to 2000	32000	1.25	3140	0.9	0.04	2.5	250	500	100	0.05	0.016	125	5

HIGH VOLTAGE THYRISTOR - THYRISTOR & THYRISTOR DIODE MODULES

Type	$I_{T(AV)}$ $I_{F(AV)}$	@T _C	V _{RRM} RANGE	I_{TSM} / I_{FSM}	V _{TM} / V _{FM}	@I _{TM} / I _{FM}	V _O (T _J = T _J max)	r _T	V _{GT}	I _{GT}	dv/dt	di/dt	R _{thJC}	R _{thCS}	T _J max	Case Type
	A	°C	V	A	V	A	V	mΩ	V	mA	V/μs	A/μs	°C/W	°C/W	°C	
IRK 115	115	85	3000-3600	3000	2.54	361	0.95	3	3	200	1000	200	0.19	0.06	125	2
IRK136	130	85	1400-2600	3200	1.66	408	0.98	1.62	3.03	200	500	100	0.2	0.035	125	2
IRK160	160	85	2000-3600	4000	2.6	1000	1.2	2.3	2	200	500	100	0.125	0.04	125	3
IRK185	185	85	1500-3000	7500	2.6	1000	1.14	0.78	2	200	500	100	0.125	0.04	125	3
IRK240	240	85	2800-3600	5400	3.43	1200	1.17	1.7	2	200	500	100	0.078	0.02	125	4
IRK 500	500	85	3000-3600	18000	1.85	1570	1.1	0.4	2.5	250	1000	200	0.025	0.008	125	5

Note : From IRK-162 to IRK-1000 modules are available in Compression bonded type



* ON REQUEST

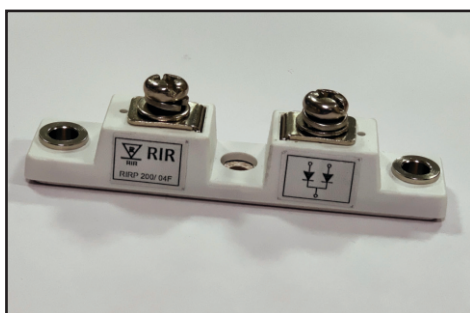
POWER MODULES

ULTRA FAST RECOVERY DIODE MODULE

Type	$I_{F(AV)}$	V_{RRM}	T_c	I_{FSM} (10ms)	V_{FM}	@ I_{FM}	t_{rr}	R_{thJC}	T_J Range	Case Type
	A	V	°C	A	V	A	ns	°C/W	°C	
RIRP240/02F	240	200	127	2300	0.94	200	87	0.19	-40 to +175	TO-244
RIRP200/04F	200	400	100	2000	1.3	200	90	0.32	-40 to +150	TO-244
RIRP400/04F	400	400	100	2500	1.95	400	90	0.32	-40 to +150	TO-244
RIRP200/06F	200	600	100	2000	1.3	200	90	0.32	-40 to +150	TO-244
RIRP300/06F	300	600	109	1150	1.36	150	68	0.32	-40 to +175	TO-244
RIRP400/06F	400	600	97	2520	1.45	200	90	0.19	-40 to +150	TO-244
RIRP480/06F	480	600	113	2200	1.5	240	61	0.19	-40 to +175	TO-244
RIRP600/06F	600	600	106	2200	1.34	300	78	0.16	-40 to +175	TO-244

NON-ISOLATED THREE THYRISTOR MODULES

Type	$I_{T(AV)}$	@ T_c	I_{RMS}	V_{RRM}	I_{TSM} (10 ms)	I^2t	V_{TM}	@ I_{TM}	V_{GT}	I_{GT}	dv/dt	di/dt	R_{thJC}	T_J max	Case Type
	A	°C	A	V	A	A²Sec	V	A	V	mA	V/μS	V/μS	°C/W	°C	
RHTT60A40	60	123	94	400	1640	13500	1.25	180	2	150	50	50	0.35	150	7
RHTT80A40	80	116	125	400	2280	26000	1.2	240	2	150	50	50	0.35	150	7
RHTT100A40	100	114	157	400	3200	51000	1.2	314	2	150	50	50	0.3	150	7
RHTT130A40	130	112	204	400	3200	51000	1.2	410	2	150	50	50	0.2	150	7
RHTT200A40	200	121	314	400	5400	1499400	1.2	630	2	150	200	50	0.12	150	8



ULTRA FAST RECOVERY DIODE MODULE



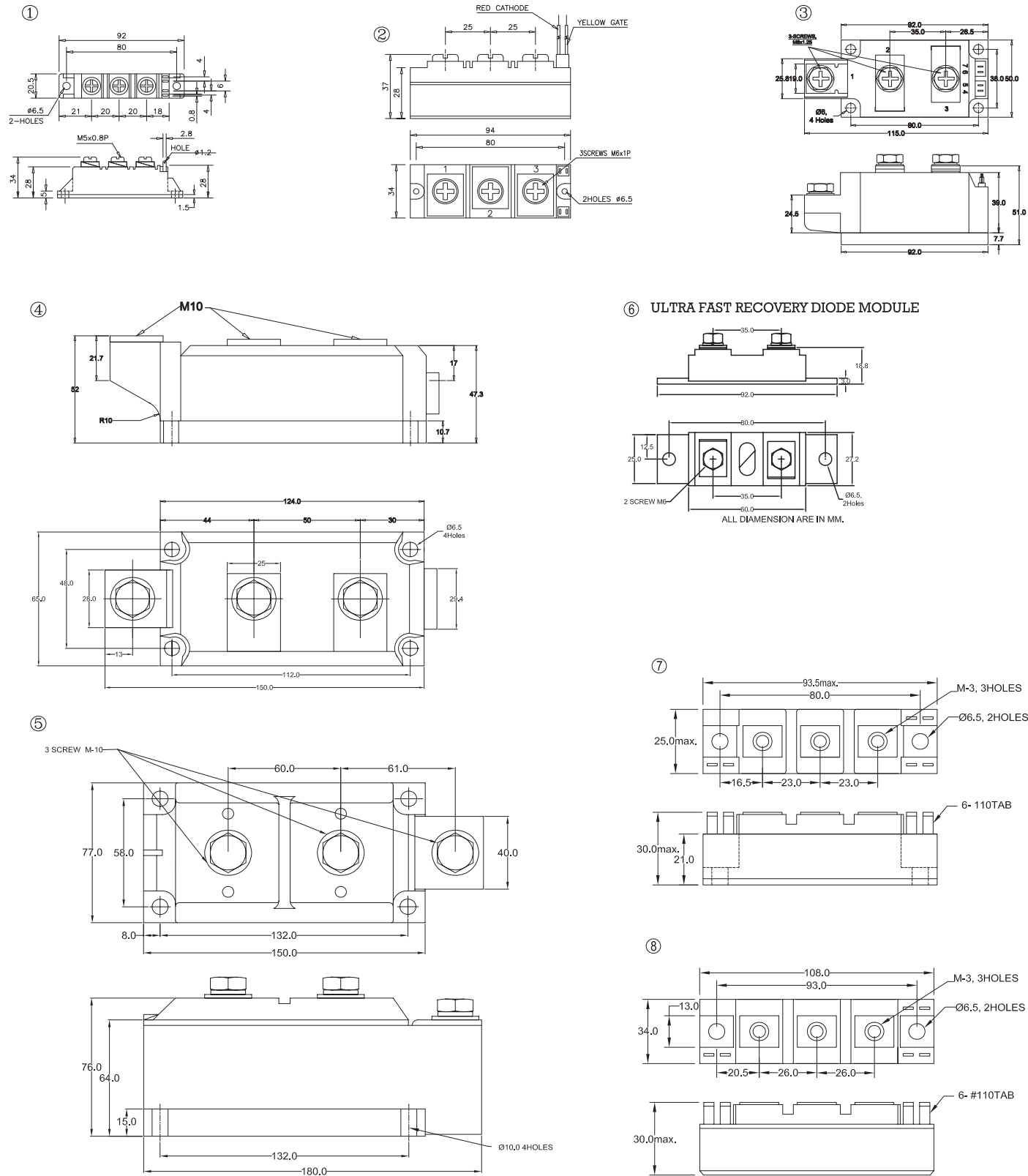
NON-ISOLATED THREE THYRISTOR MODULE



THYRISTOR - DIODE MODULES

HIGH POWER MODULES

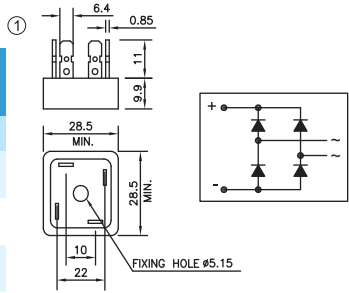
PHYSICAL DIMENSIONS



BRIDGE RECTIFIERS

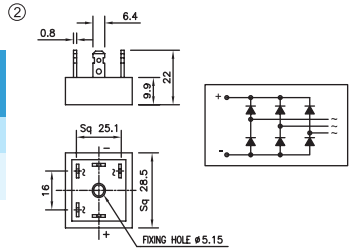
SINGLE PHASE DIODE BRIDGE RECTIFIER

Type	$I_{O(AV)}$	V_{FM} Per Diode	@ I_{FM}	@ T_{amb}	V_{RRM}	I_{FSM}	$T_{J,max}$
	A	V	A	°C	V	A	°C
26MB	25	1.1	40	65	200-1600	330	150
36MB	35	1.2	55	60	200-1600	400	150
51MB	50	1.1	55	60	200-1600	450	150



THREE PHASE DIODE BRIDGE RECTIFIER

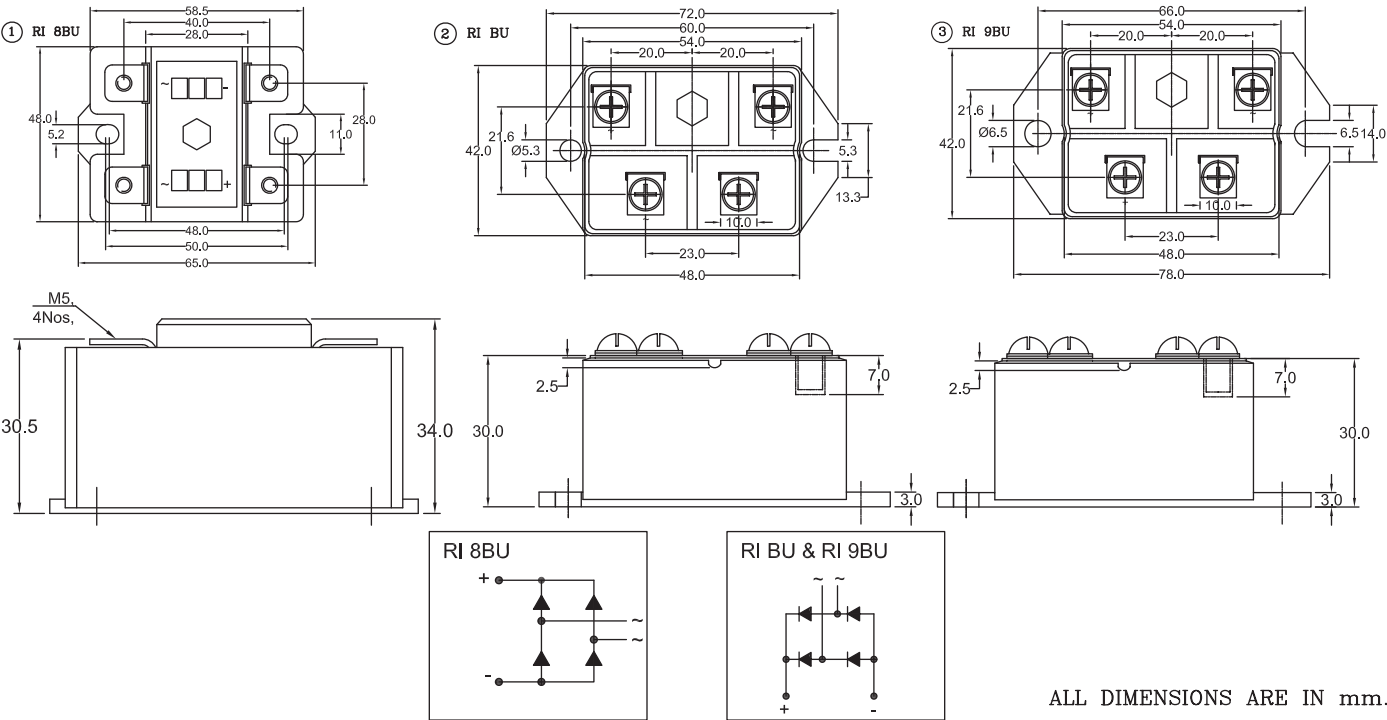
Type	$I_{O(AV)}$	V_{FM} Per Diode	@ I_{FaM}	@ T_{amb}	V_{RRM}	I_{FSM}	i^2t	$T_{J,max}$
	A	V	A	°C	V	A	A2Sec	°C
26MT	25	1.26	40	70	200-1600	360	635	150
36MT	35	1.19	40	60	200-1600	475	1130	150



BRIDGE RECTIFIER MODULES

SINGLE PHASE DIODE BRIDGE MODULE

Type	V_{RRM}	$I_{D(AV)}$	T_C	V_{FM} (Per Diode)	@ I_F	I_{FSM} (10ms)	V_{TO} ($T_J=T_{J,max}$)	r_T	R_{thj-HS}	T_J max	V_{ins}
	V	A	°C	V	A	A	V	mΩ	°C/W	°C	V
RI8BU30	400-1800	30	110	1.3	80	370	0.85	12	0.545	125	2500
RI8BU60	400-1800	60	88	1.6	150	1000	0.85	5	0.3	125	2500
RI9BU25	400-1800	30	110	1.3	80	370	0.85	12	0.25	125	2500
RI9BU55	400-1800	52	100	1.75	75	370	0.85	12	0.2	125	2500
RIBU52	400-1800	50	99	1.8	150	500	0.85	8	0.375	150	2500
RIBU72	400-1800	70	101	1.6	150	750	0.85	5	0.275	150	2500



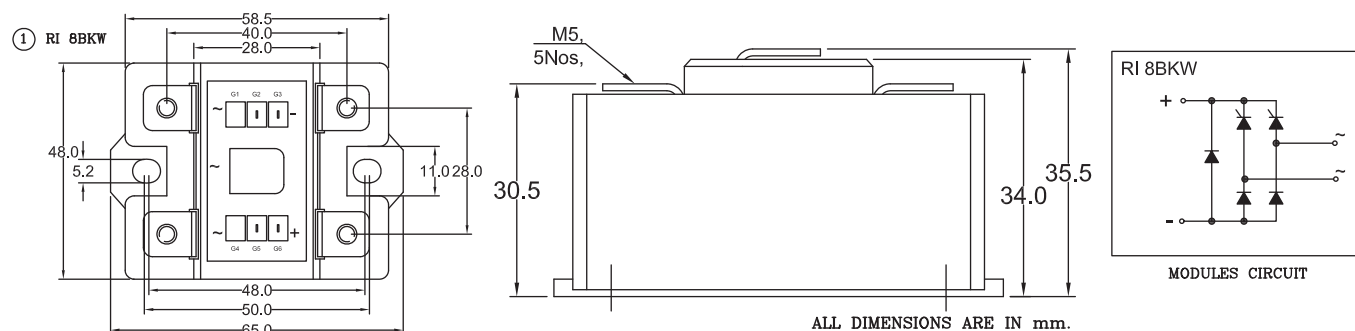
ALL DIMENSIONS ARE IN mm.

BRIDGE RECTIFIER MODULES

SINGLE PHASE HALF CONTROLLED BRIDGE RECTIFIER MODULE

Type	$I_{D(AV)}$	T_C	V_{RRM} Range	I_{FSM} (10ms)	V_{TM} (Per SCR) / V_{FM} (Per Diode)	@ I_F	V_{GT}	I_{GT}	dv/dt	di/dt	R_{thJC}	T_J Range
	A	°C	V	A	V	A	V	mA	V/μSec	A/μSec	°C/W	°C
RI8BKW41	41	88	800-1400	470	2.3	75	2	60	500	150	1	-40to125
RI8BKW60	61	85	800-1400	470	2.3	75	2	60	500	150	1	-40to125

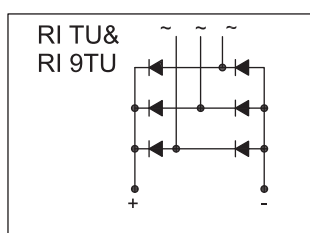
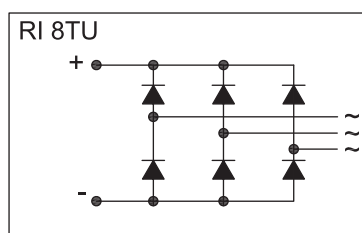
POWER MODULE – SINGLE PHASE HALF CONTROLLED RECTIFIER MODULE WITH FREE WHEELING DIODE



BRIDGE RECTIFIER MODULES

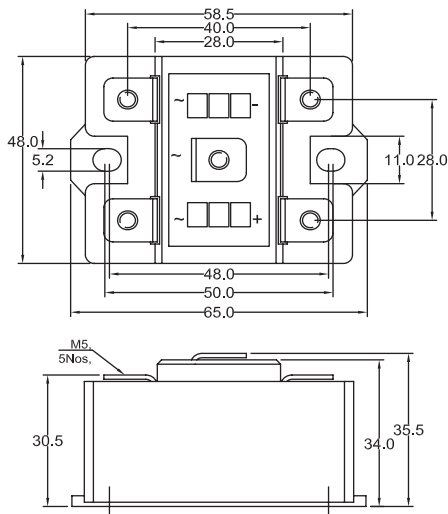
THREE PHASE DIODE BRIDGE MODULE

Type	V_{RRM}	$I_{D(AV)}$	T_C	V_{FM} (Per Diode)	@ I_F	I_{FSM} (10ms)	V_{TO} ($T_J = T_{Jmax}$)	r_T	R_{thj-HS}	$T_J max$	V_{ISO}
	V	A	°C	V	A	A	V	mΩ	°C/w	°C	V
RI8TU30	400-1800	40	90	1.3	80	370	0.85	12	0.43	125	2500
RI8TU60	400-1800	60	102	1.6	150	1000	0.85	5	0.167	125	2500
RI8TU100	400-1800	100	93	1.35	150	1150	0.85	5	0.14	125	2500
RITU62	400-1800	60	110	1.8	150	500	0.85	8	0.25	150	2500
RITU82	400-1800	80	110	1.6	150	750	0.85	5	0.183	150	2500
RI9TU25	400-1800	25	110	1.3	80	370	0.85	12	0.25	125	2500
RI9TU55	400-1800	55	100	1.75	75	370	0.85	12	0.2	125	2500
RI9TU110	400-1800	110	100	1.35	150	1150	0.85	4	0.15	150	2500
RITU160	400-1800	160	100	1.65	300	1800	0.85	3	0.11	150	2500

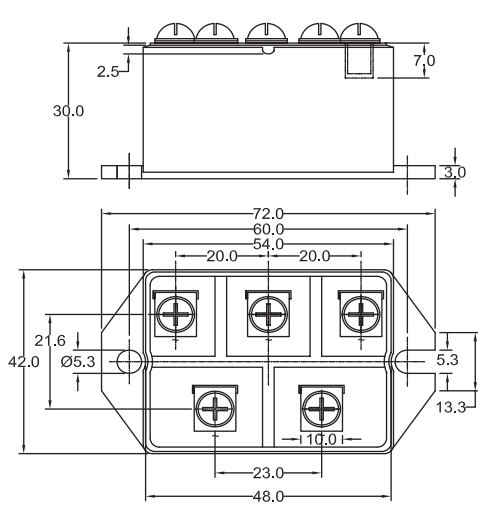


THREE PHASE DIODE MODULE

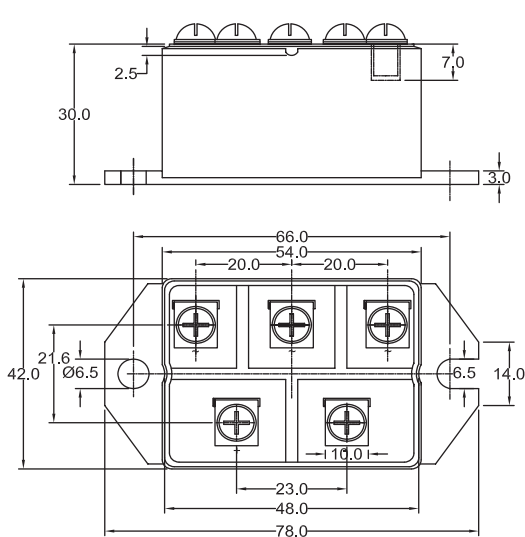
① RI 8TU



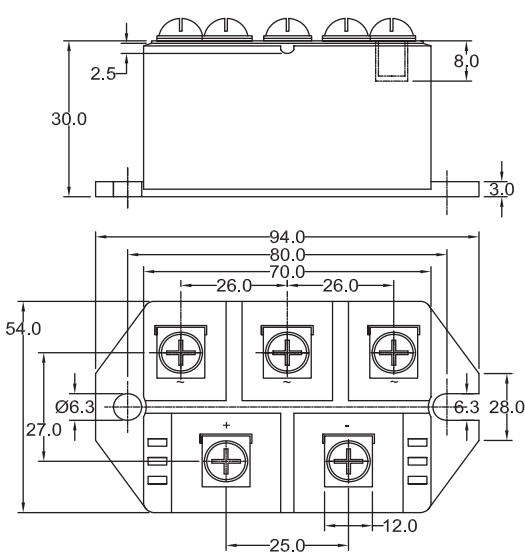
② RI TU



③ RI 9TU



④ RITU 160



IGBT MODULES

1200V PIM MODULES - ADVANCED TRENCH FS IGBT, LOW LOSS

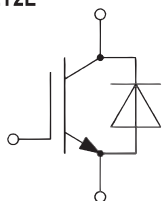
Part Number	V _{CES}	I _c	V _{CE(Sat)} (@T _J =25°C _{typ})	E _{on} +E _{off} (@T _J = 125°C)	R _{th(j-c)}	Package (Dimension)	Cross Reference
	V	A	V	mJ	K/W		
GD10PJY120L2S	1200	10	1.7	2.27	1.2	L2(34mm×48mm×15.5mm)	FP10R12W1T4
GD15PJY120L2S	1200	15	1.7	3.11	1.02	L2(34mm×48mm×15.5mm)	FP15R12W1T4
GD25PJY120L3S	1200	25	1.7	4.78	0.71	L3(48mm×57mm×15.5mm)	FP25R12W2T4
GD35PJY120L3S	1200	35	1.7	6.09	0.552	L3(48mm×57mm×15.5mm)	FP35R12W2T4
GD25PIY120C5S	1200	25	1.7	4.8	0.728	C5(107mm×45mm×17mm)	FP25R12KT3
GD40PIY120C5S	1200	40	1.7	5.8	0.535	C5(107mm×45mm×17mm)	FP40R12KT3
GD25PIY120C5SN	1200	25	1.7	4.8	0.728	C5(107mm×45mm×17mm)	FP25R12KT4
GD35PIY120C5SN	1200	35	1.7	6.1	0.569	C5(107mm×45mm×17mm)	FP35R12KT4
GD50PIY120C5SN	1200	50	1.7	12.7	0.512	C5(107mm×45mm×17mm)	FP50R12KT4
GD40PIY120C5S	1200	40	1.7	5.8	0.535	C6(122mm×62mm×17mm)	FP40R12KT3
GD50PIY120C6S	1200	50	1.7	12.7	0.512	C6(122mm×62mm×17mm)	FP50R12KT4G
GD75PIY120C6S	1200	75	1.7	14.4	0.394	C6(122mm×62mm×17mm)	FP75R12KT4
GD75PIY120C6SN	1200	75	1.7	14.4	0.394	C6(122mm×62mm×17mm)	FP75R12KT4-B15
GD100PIY120C6SN	1200	100	1.7	18.5	0.293	C6(122mm×62mm×17mm)	FP100R12KT4

HALF BRIDGE MODULES - TRENCH FS IGBT, LOW LOSS

Part Number	V _{CES}	I _c	V _{CE(Sat)} (@T _J =25°C _{typ})	E _{on} +E _{off} (@T _J = 125°C)	R _{th(j-c)}	Package (Dimension)	Cross Reference
	V	A	V	mJ	K/W		
GD100HFX65C1S	650	100	1.45	3.4	0.452	C1(94mm×34mm×30mm)	SKM100GBO63D
GD150HFX65C1S	650	150	1.45	5.5	0.339	C1(94mm×34mm×30mm)	SKM145GB066D
GD200HFX65C1S	650	200	1.45	6.9	0.245	C1(94mm×34mm×30mm)	SKM195GBO66D
GD300HFX65C2S	650	300	1.45	12.7	0.157	C2(106mm×62mm×30mm)	SKM300GB066D
GD400HFX65C2S	650	400	1.45	16.2	0.121	C2(106mm×62mm×30mm)	SKM400GB066D
GD600HFX65C2S	650	600	1.45	29.9	0.08	C2(106mm×62mm×30mm)	SKM600GB066D
GD50HFY120C1S	1200	50	1.7	12.7	0.512	C1(94mm×34mm×30mm)	SKM50GB12T4
GD75HFY120C1S	1200	75	1.7	14.4	0.394	C1(94mm×34mm×30mm)	SKM75GB12T4
GD100HFY120C1S	1200	100	1.7	18.5	0.278	C1(94mm×34mm×30mm)	SKM100GB12T4
GD150HFY120C1S	1200	150	1.7	26.1	0.203	C1(94mm×34mm×30mm)	SKM150GB12T4
GD150HFY120C2S	1200	150	1.7	26.1	0.203	C2(106mm×62mm×30mm)	SKM150GB12T4G
GD200HFY120C2S	1200	200	1.7	36.8	0.143	C2(106mm×62mm×30mm)	SKM200GB12T4
GD300HFY120C2S	1200	300	1.7	57.1	0.093	C2(106mm×62mm×30mm)	SKM300GB12T4
GD400HFY120C2S	1200	400	1.7	86.8	0.072	C2(106mm×62mm×30mm)	SKM400GB12T4
GD450HFY120C2S	1200	450	1.7	89.8	0.063	C2(106mm×62mm×30mm)	SKM450GB12E4
GD600HFY120C2S	1200	600	1.7	103.8	0.04	C2(106mm×62mm×30mm)	SKM600GB12T4
GD200HFX170C2S	1700	200	1.85	143.7	0.118	C2(106mm×62mm×30mm)	SKM200GB17E4
GD300HFX170C2S	1700	300	1.85	195.8	0.082	C2(106mm×62mm×30mm)	SKM300GB17E4
GD400HFX170C2S	1700	400	1.85	304	0.062	C2(106mm×62mm×30mm)	SKM400GB17E4

SINGLE SWITCH IGBT WITH DIODE

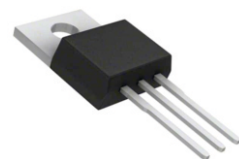
Part #	Voltage(V)	Current(A)	Package
DG10X06T1	600	10	TO-220
DG15X06T1	600	15	TO-220
DG20X06T2	600	20	TO-247
DG30X06T2	600	30	TO-247
DG50X06T2	600	50	TO-247
DG30X07T2	650	30	TO-247
DG50X07T2	650	50	TO-247
DG75X07T2L	650	75	TO-247Plus
DG100X07T2	650	100	TO-247Plus
DG120X07T2	650	100	TO-247Plus
DG10X12T2	1200	10	TO-247
DG15X12T2	1200	15	TO-247
DG25X12T2	1200	25	TO-247
DG40F12T2	1200	40	TO-247
DG40X12T2	1200	40	TO-247
DG50Q12T2	1200	50	TO-247Plus
DG75Q12T2	1200	75	TO-247Plus
DG75X12T2L	1200	75	TO-247Plus



IGBT SYMBOL



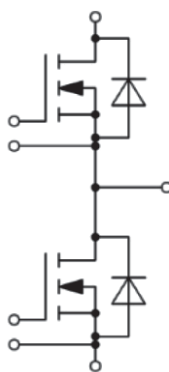
TO-247



TO-220

SiC MOSFET MODULES

Type	V_{DSS} V	I_D A	$R_{DS(on)}$ (@ $T_J=25^\circ\text{C}$ mΩ)	$R_{th(J-C)}$ K/W	Package(Dimension)
	V	A	mJ	K/W	
MD120HFR120C2S	1200	120	13	0.181	C2(106mm×62mm×30mm)
MD300HFR120C2S	1200	300	6.5	0.1	C2(106mm×62mm×30mm)
MD400HFR120C2S	1200	400	4.4	0.074	C2(106mm×62mm×30mm)
MD200HFR170C2S	1700	200	8.7	0.058	C2(106mm×62mm×30mm)
MD250HFR170C2S	1700	250	10.4	0.069	C2(106mm×62mm×30mm)
MD120HFR120B3S	1200	120	13	0.181	B3(108mm×62mm×22mm)
MD300HFR120B3S	1200	300	6.5	0.1	B3(108mm×62mm×22mm)
MD400HFR120B3S	1200	400	4.4	0.074	B3(108mm×62mm×22mm)
MD200HFR170B3S	1700	200	8.7	0.058	B3(108mm×62mm×22mm)
MD250HFR170B3S	1700	250	10.4	0.069	B3(108mm×62mm×22mm)



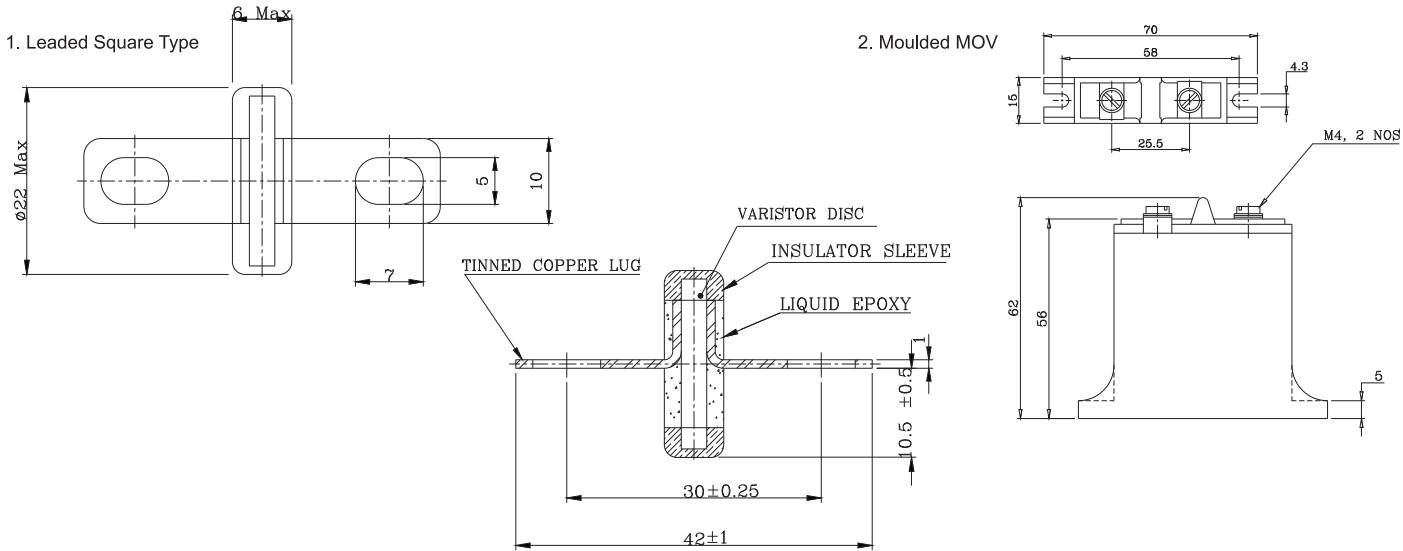
METAL OXIDE VARISTOR (MOV)

HIGH ENERGY METAL OXIDE VARISTOR LEADED SQUARE TYPE

Part Number	Disc Size in mm	AC Voltage	DC Voltage	Varistor	Voltage @1mA	DC test current	Max Clamping Voltage @200A	Maximum Energy	Peak Current
	V_{RMS} (V)	V_{DC} (V)	V_{min} (V)	V_n (V)	V_{max} (V)	V_c (V)	E_{TM} (J)	I_{TM} (A)	I_{peak} (A)
RMO 150/20L	20	150	200	216	240	264	370	77	8000
RMO 240/20L	20	240	330	351	390	429	620	140	8000
RMO 320/20L	20	320	415	450	500	550	820	160	8000
RMO 420/20L	20	420	560	612	680	748	1080	180	8000
RMO 510/20L	20	510	675	738	820	902	1300	200	8000
RMO 660/20L	20	660	850	936	1040	1144	1550	260	8000
RMO 750/20L	20	750	970	1080	1200	1320	1800	300	8000

HIGH ENERGY METAL OXIDE VARISTOR MOLDED MOV

Part Number	Disc Size in mm	AC Voltage	DC Voltage	Varistor	Voltage @1mA	DC test current	Max Clamping Voltage @200A	Maximum Energy	Peak Current
	V_{RMS} (V)	V_{DC} (V)	V_{min} (V)	V_n (V)	V_{max} (V)	V_c (V)	E_{TM} (J)	I_{TM} (A)	I_{peak} (A)
RMO 150/33M	33	150	200	216	240	264	410	230	25000
RMO 150/41M	41	150	200	216	240	264	405	300	30000
RMO 240/33M	33	240	330	351	390	429	680	345	25000
RMO 240/41M	41	240	330	351	390	429	650	370	30000
RMO 320/33M	33	320	415	450	500	550	850	410	25000
RMO 320/41M	41	320	415	450	500	550	830	480	30000
RMO 420/33M	33	420	560	612	680	748	1200	420	30000
RMO 420/41M	41	420	560	612	680	748	1130	630	40000
RMO 510/33M	33	510	675	738	820	902	1440	525	30000
RMO 510/41M	41	510	675	738	820	902	1350	735	40000
RMO 750/33M	33	750	970	1080	1200	1320	2050	735	30000
RMO 750/41M	41	750	970	1080	1200	1320	2000	1100	40000

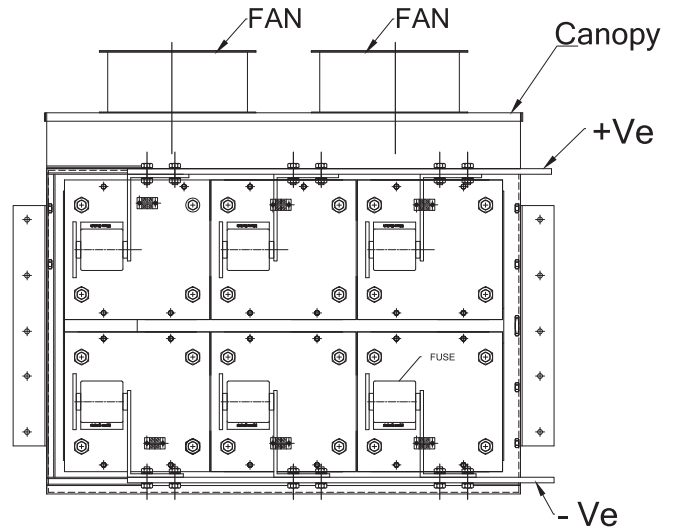


STACKS & ASSEMBLIES

DIODE STACKS (B6U)

Device Type	I/P Voltage Cont.	Class -1 100%	Class 2 150% for 1 Minute	Recommended Panel Size in mm (W × D × H)
R 650 16	415 VAC	1200A	800A	1000×600×900
R 1200 160	415 VAC	1800A	1200A	1000×600×900
R 2000 K 60	415 VAC	2500A	1800A	1000×600×900
R 3000 K 200	660 VAC	3000A	2000A	1000×600×900

Note :- Current ratings are valid for forced cooling of 5 mtrts/
Sec air outlet and ambient temp. 45°C Provided with suitable Fuses & Heatsink



DIODE STACKS



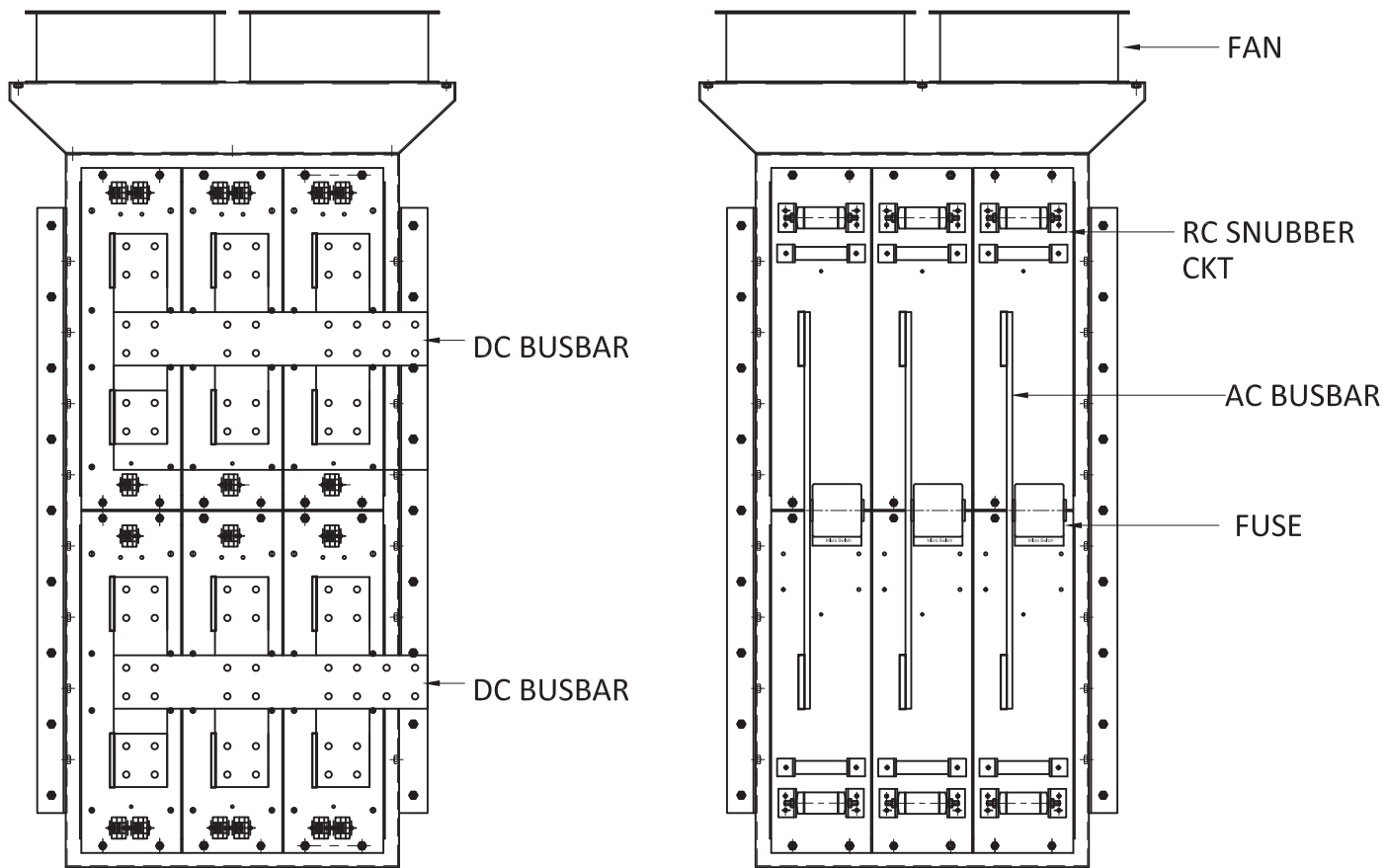
THYRISTOR STACK

THYRISTOR STACK (B6U) 2Q

Device Type	I/P Voltage	Class -1 100% Cont.	Class-2 150% for 1 Minute	Class-4 125% for 2hrs 200% for 10sec	Class-5 150% for 2hrs 200% for 1 Min	Class-6 150% for 2hrs 300% for 1 Min	Stack Size in mm (W × D × H)
600 PE 16	450 V	800 A	560 A	440 A	410 A	280 A	650 X 450 X650
700 PE 18	450 V	860 A	600 A	475 A	450 A	340 A	650 X 450 X650
700 PE 18	500 V	1010 A	710 A	575 A	525 A	360 A	650 X 450 X650
1000 PB 16	450 V	1375 A	975 A	800 A	725 A	500 A	650 X 450 X650
1200 PK 18	500 V	1675 A	1225 A	1025 A	900 A	640 A	650 X 450 X750
1200 PK 18	500 V	2090 A	1540 A	1325 A	1125 A	800 A	550 X 400 X750
1700 PK 18	500 V	2350 A	1740 A	1360 A	1275 A	910 A	550 X 400 X750
2500 PM 18	500 V	2990 A	2225 A	1770 A	1625 A	1175 A	750 X 500 X 750
3500 PQ 18	550 V	3675 A	2850 A	2325 A	2050 A	1525 A	750 X 500 X 750
3500 PQ 22	700 V	3550 A	2375 A	2225 A	1975 A	1475 A	750 X 500 X 750
2400 PR 22	750 V	1740 A	1275 A	1100 A	925 A	670 A	850 X 500 X 750
2800 PR 22	750 V	2475 A	1850 A	1470 A	1350 A	975 A	850 X 500 X 750
2800 PR 32	1000 V	2350 A	1450 A	1400 A	1275 A	925 A	850 X 500 X 750

THYRISTOR STACK (B6U) 4Q

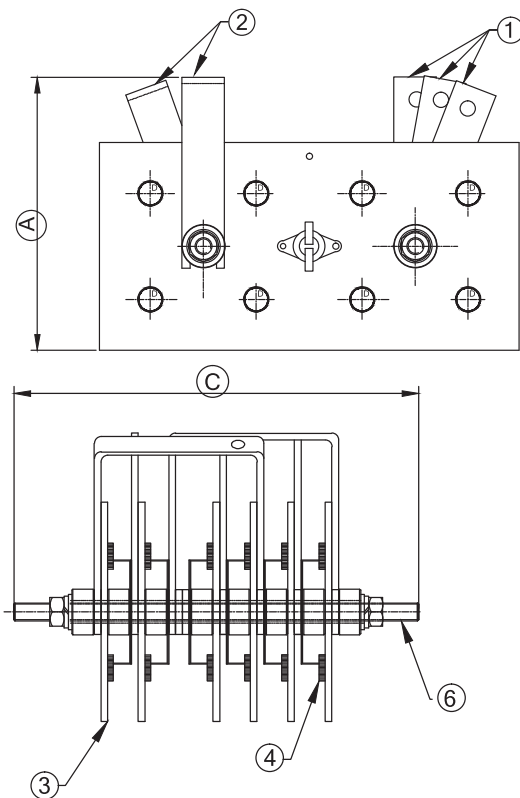
Device Type	I/P Voltage	Class -1	Class-2	Class-4	Class-5	Class-6	Stack Size in mm
		100% Cont.	150% for 1 Minute	125% for 2hrs 200% for 10sec	150% for 2hrs 200% for 1 Min	150% for 2hrs 300% for 1 Min	(W × D × H)
600 PE 16	450 V	800 A	560 A	440 A	410 A	280 A	600 X 400 X 1050
700 PE 18	450 V	860 A	600 A	475 A	450 A	340 A	600 X 400 X 1050
700 PE 18	500 V	1010 A	710 A	575 A	525 A	360 A	600 X 400 X 1050
1000 PB 16	450 V	1375 A	975 A	800 A	725 A	500 A	650 X 430 X 1225
1200 PK 18	500 V	1675 A	1225 A	1025 A	900 A	640 A	650 X 430 X 1225
1200 PK 18	500 V	2090 A	1540 A	1325 A	1125 A	800 A	650 X 430 X 1225
1700 PK 18	500 V	2350 A	1740 A	1360 A	1275 A	910 A	650 X 430 X 1225
2500 PM 18	500 V	2990 A	2225 A	1770 A	1625 A	1175 A	800 X 650 X 1500
3500 PQ 18	550 V	3675 A	2850 A	2325 A	2050 A	1525 A	800 X 650 X 1500
3500 PQ 22	700 V	3550 A	2375 A	2225 A	1975 A	1475 A	800 X 650 X 1500
2400 PR 22	750 V	1740 A	1275 A	1100 A	925 A	670 A	800 X 650 X 1500
2800 PR 22	750 V	2475 A	1850 A	1470 A	1350 A	975 A	800 X 650 X 1500
2800 PR 32	1000 V	2350 A	1450 A	1400 A	1275 A	925 A	800 X 650 X 1500



STACKS & ASSEMBLIES

WELDING RECTIFIER STACK

Device Type	In (A)	V _{OUT} (V)	Duty Cycle	Air Speed (m/s)	V _{RRM} (V)	Dimensions in mm
S 240	240	100	60%	4	400	Fig 1
S 400	400	100	60%	4	400	Fig 1
S 600	600	100	60%	4	400	Fig 1
S 800	800	100	60%	4	400	Fig 1



- ① AC Busbar (R, Y, B)
- ② DC Busbar (+Ve, -Ve)
- ③ Alu Heatsink
- ④ Auto Diode
- ⑤ Ceramic Bush
- ⑥ Fixing Stud

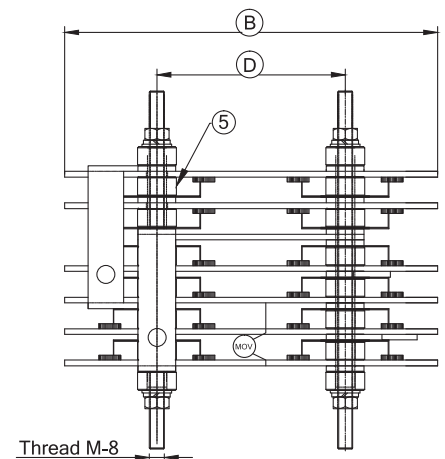


Fig - 1

Type	A	B	C	D
S 240	130	200	190	100
S 400	130	200	190	100
S 600	135	200	295	100
S 800	135	200	295	100

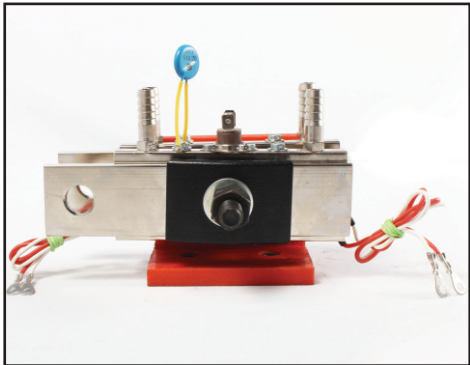
IGBT STACK

Product Type	Mounting Type	VAC (V)	VDC (V)	I Com (A)	Switches	Cooling	Dimension (L x W x H)
RIR-IGD-1V-20-50/90-P1N4-FA	Vertical	460	900	200	6	Forced-air cooled	573 x 397 x 473
RIR-IGD-2V-40-50/90-P1N6-FA	Vertical	460	900	350	6	Forced-air cooled	755 x 372 x 532
RIR-IGD-4V-80-50/90-P1F7-FA	Vertical	460	900	750	6	Forced-air cooled	756 x 747 x 542
RIR-IGD-8V-150-50/90-P1F9-FA	Vertical	460	900	1470	6	Forced-air cooled	756 x 1122 x 542
RIR-IGD-8V-150-50/80-E1F12-FA	Vertical	460	750	1470	6	Forced-air cooled	1122 x 516 x 418
RIR-IGD-1H-20-50/100-P1F2-FA	Horizontal	500	1000	230	6	Forced-air cooled	450 x 290 x 214
RIR-IGD-1H-20-50/10-P1F2-G	Horizontal	500	1000	230	6	Forced-air cooled	450 x 290 x 214
RIR-IGD-2H-40-50/100-P1F4-FA	Horizontal	500	1000	440	6	Forced-air cooled	675 x 370 x 211
RIR-IGD-2H-40-50/100-P1F4-G	Horizontal	500	1000	440	6	Forced-air cooled	675 x 370 x 211
RIR-IGD-4H-80-50/100-P1F8-FA	Horizontal	500	1000	750	6	Forced-air cooled	750 x 546 x 243
RIR-IGD-4H-80-50/100-P1F8-G	Horizontal	500	1000	750	6	Forced-air cooled	750 x 546 x 243
RIR-IGD-8H-150-50/100-P1F15-FA	Horizontal	500	1000	1500	6	Forced-air cooled	731 x 1098 x 244
RIR-IGD-8H-150-50/100-P1F15-G	Horizontal	500	1000	1500	6	Forced-air cooled	731 x 1098 x 244

STACKS & ASSEMBLIES

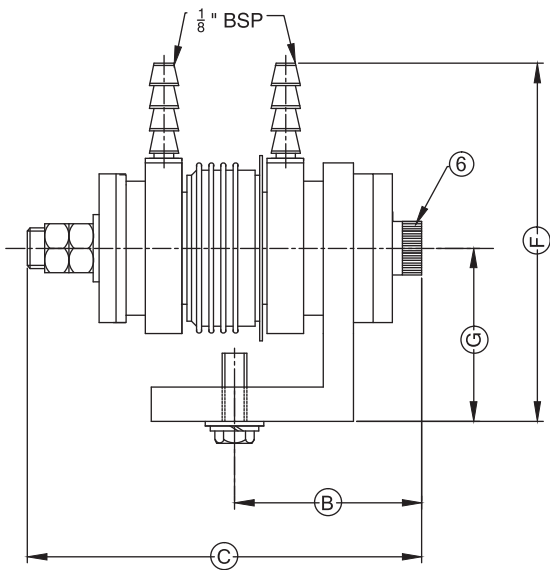
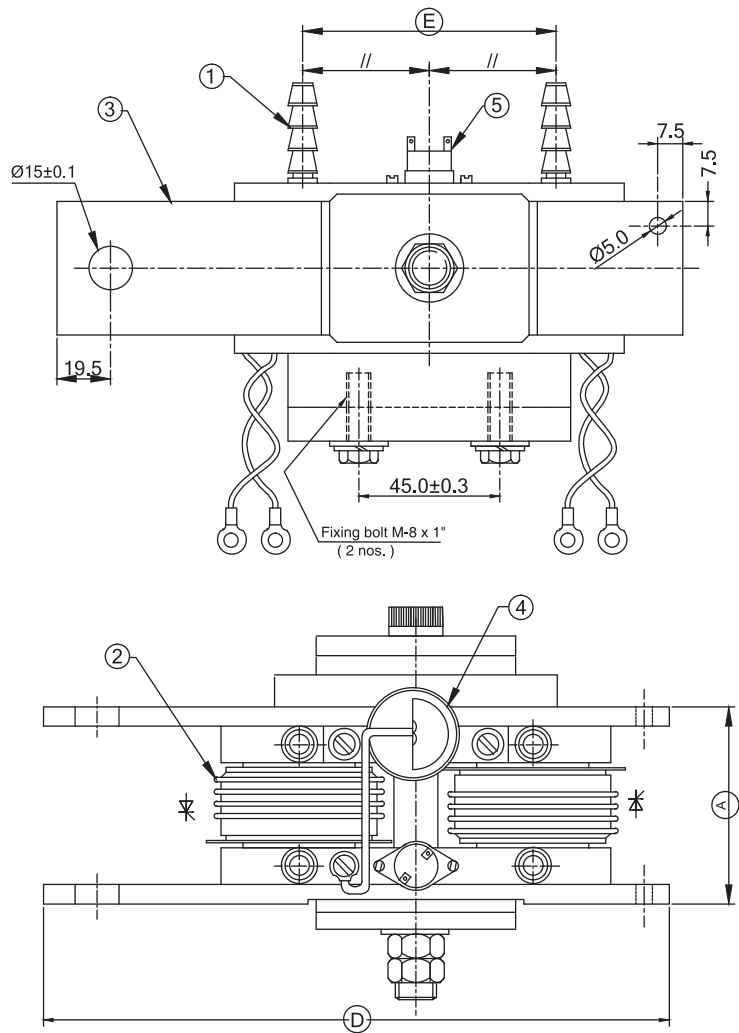
WATER COOLED ASSEMBLIES

Device Type	V_{DRM}	$I_{\text{RMS}}/T_{\text{WATER}}$	I_{TSM} Sine Wave 10ms	Dimensions in mm
	(V)	(A/°C)	(kA)	
W1C 600-PA	1600V	600/40	5.6	Fig 1
W1C 1000-PB	1600V	1000/40	9	Fig 1
W1C 1300-PB	1600V	1300/40	17.8	Fig 1
W1C 1500-PK	1600V	1500/40	23.6	Fig 1



Water Flow Rate - 4.5 L/min
Max. Water Pressure - 10 Bar
Note : - dv/dt - 500 V/ μ (Higher dv/dt is available on request)

Type	(A)	(B)	(C)	(D)	(E)	(F)	(G)
W1C 600-PA	50	48	122-5	205	90-0	110-8	51
W1C 1000-PA	51	54	122-5	205	90-0	110-8	51
W1C 1300-PB	63	59-5	205	205	90-0	110-8	51
W1C 1500-PK	64	59-5	215	215	99-0	120-0	63-2



- ① Water Cooled Heat Sink
- ② Hockey puk
- ③ Connecting Copper Busbar
- ④ Varistor
- ⑤ Thermal Switch
- ⑥ Fixing bolt

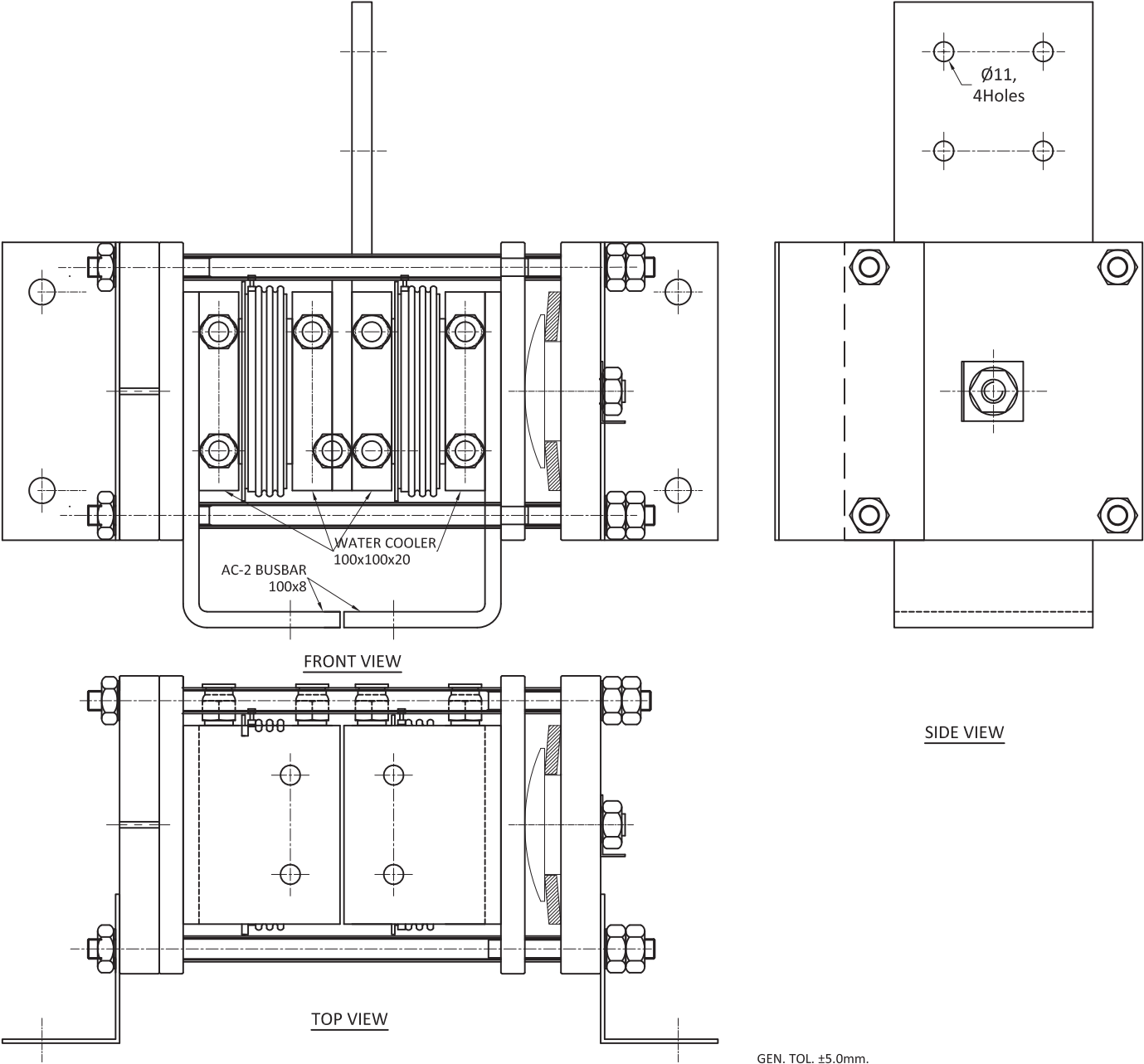
Fig - 1

All Dimensions in M.M.
.....

STACKS & ASSEMBLIES

WATER COOLED AC SWITCH

Device Type	V_{DRM}	I_{RMS}/T_{WATER}	I_{TSM} Sine Wave 10ms	Dimensions in mm
	(V)	(A/°C)	(kA)	
W1C 3000-PQ	1600 V	3000/40	52	315 X 360 X 185
W1C 3500-PR	1600 V	3500/40	60	315 X 360 X 185



WATER COOLED AC SWITCH 3000 PQ

STACKS & ASSEMBLIES

ISOLATED WATER-COOLED ASSEMBLIES

Module Type	V_{DRM}	$I_{\text{RMS}}/T_{\text{WATER}}$	I_{TSM} Sine Wave 10ms	Dimensions in mm
	(V)	(A/°C)	(kA)	
W1CI-550-16	1600V	550/40	5.6	Fig - 1
W1CI-850-16	1600V	850/40	9	Fig - 1
W1CI-1200-16	1600V	1200/40	12.5	Fig - 2

Fig - 1

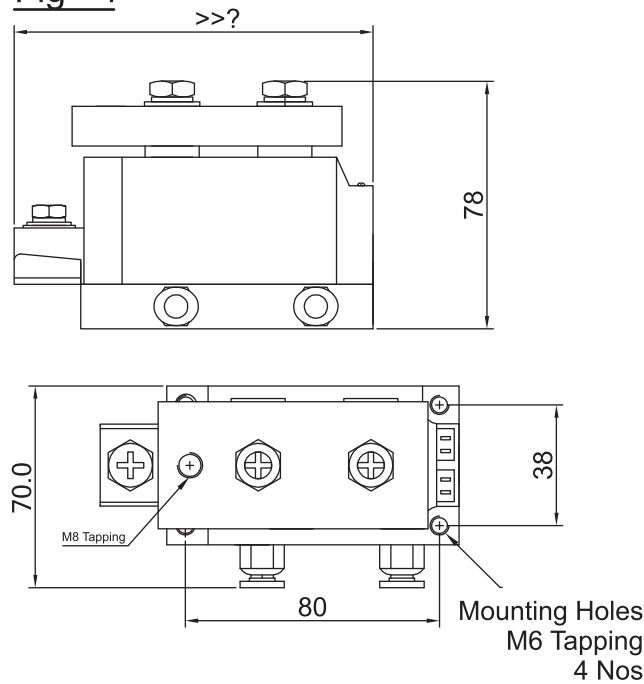
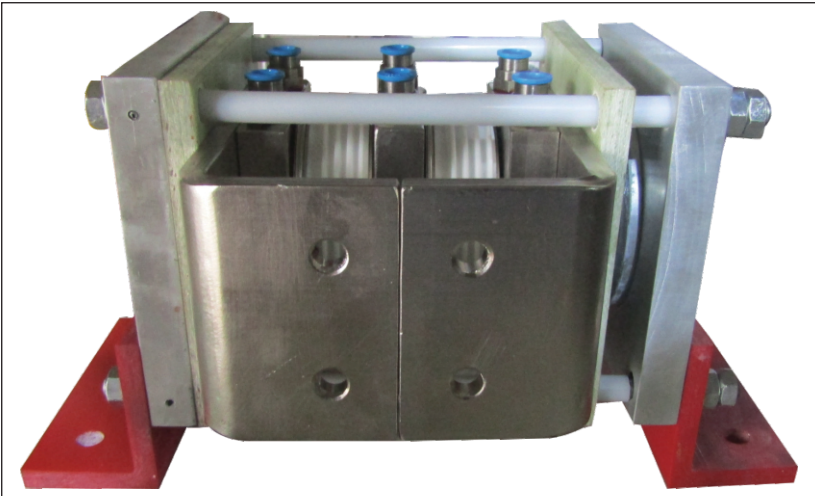
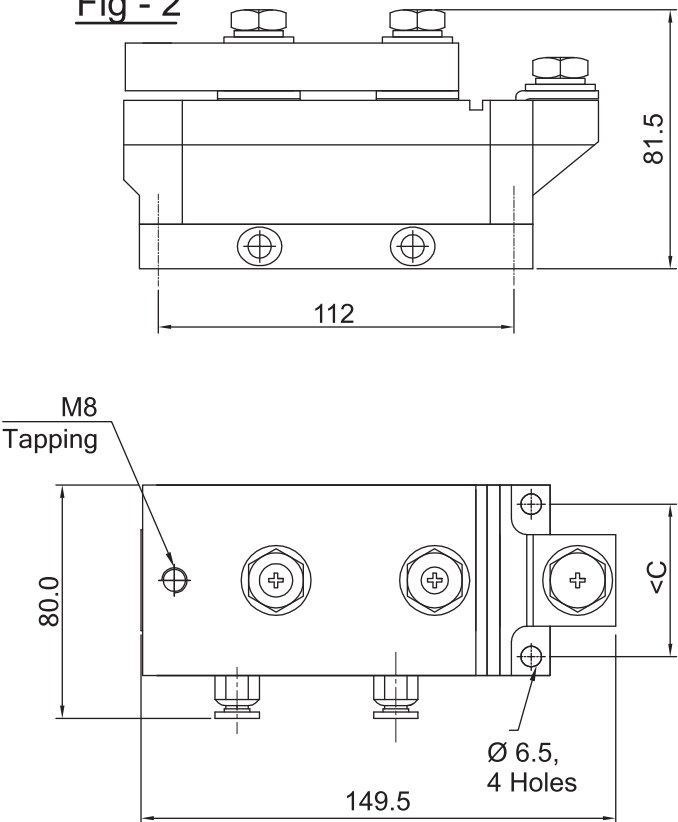


Fig - 2

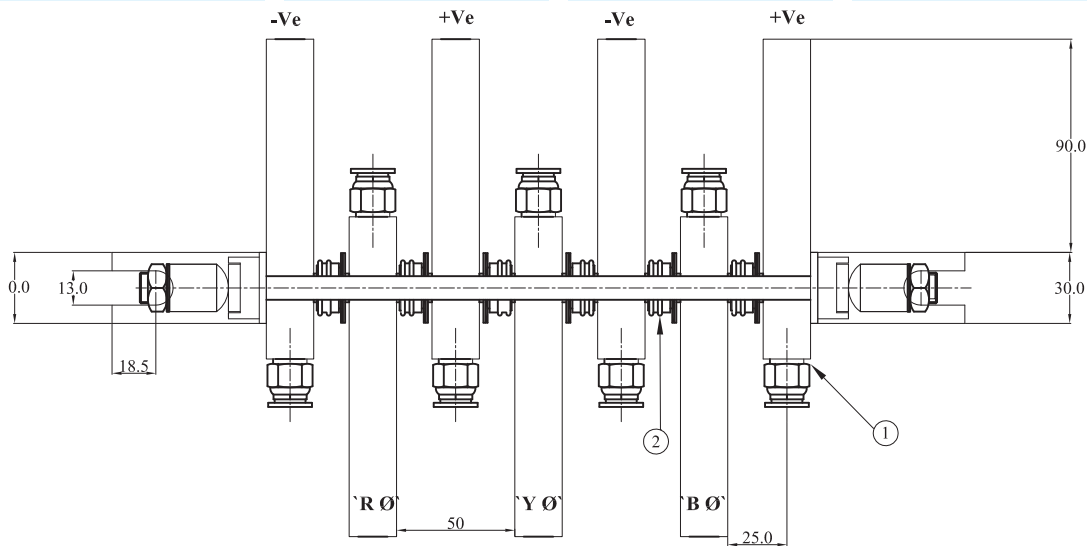


ISOLATED WATER-COOLED ASSEMBLY

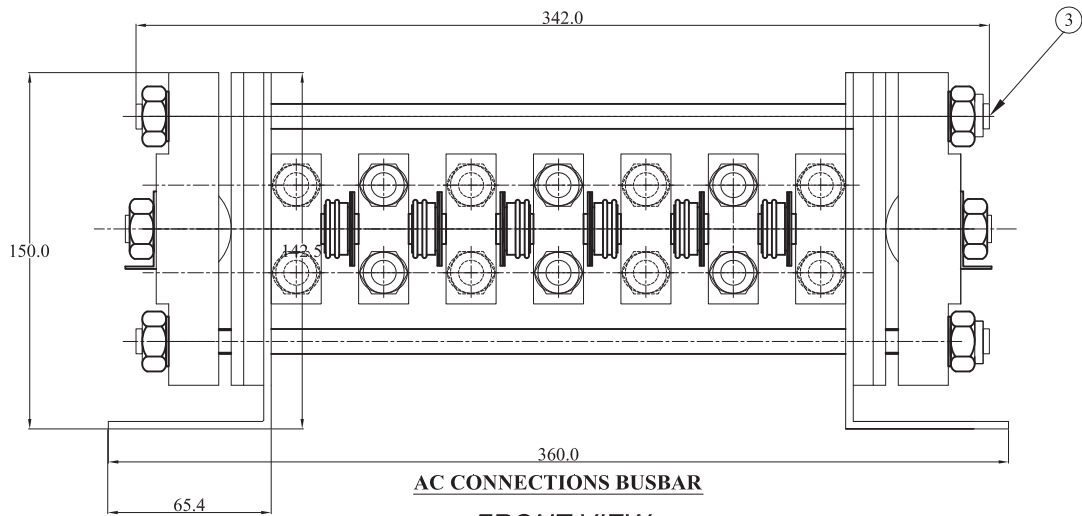
STACKS & ASSEMBLIES

WATER COOLED DIODE BRIDGE

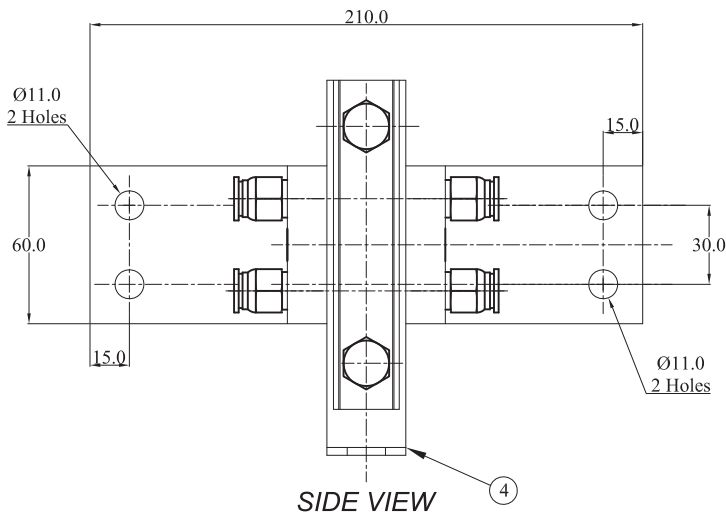
Device Type	V_{DRM}	$I_{\text{RMS}}/T_{\text{WATER}}$	I_{TSM} Sine Wave 10ms	Dimensions in mm
	(V)	(A/°C)	(kA)	
R 1400 E 22 C	415 VAC	1400 A	930 A	350 X 220 X 160



DC CONNECTIONS BUSBAR
TOP VIEW



AC CONNECTIONS BUSBAR
FRONT VIEW



SIDE VIEW

- ① Water Cooler 60 x 20 x 135 long
- ② Device R1400 E 22C
- ③ Preset Clamp 10KN
- ④ Mounting Bracket

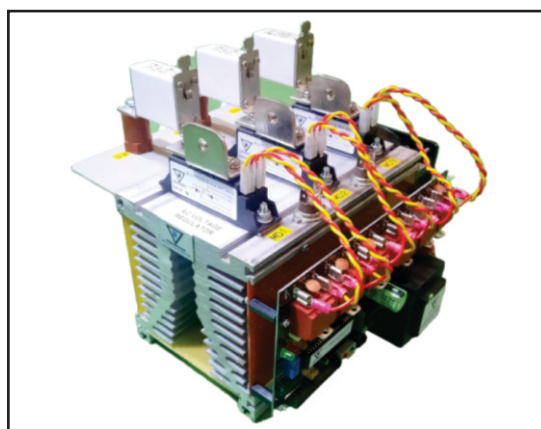
POWER EQUIPEMENT

SOFT STARTER

Part Number	3Ø Thyristor power regulators (3 wire Delta / 3 or 4 wire Star Configuration)	Size (H x W x D)
RIR-SS-55-415	Max. 55kW @ 415 VAC	290 x 230 x 230
RIR-SS-90-415 A	Max. 90kW @ 415 VAC	290 x 230 x 230
RIR-SS-132-415	Max. 132kW @ 415 VAC	340 x 230 x 265
RIR-SS-250-415	Max. 250kW @ 415 VAC	380 x 320 x 265
RIR-SS-355-415	Max. 330kW @ 415 VAC	670 x 400 x 300
RIR-SS-500-415	Max. 500kW @ 415 VAC	670 x 400 x 300
RIR-SS-630-415	Max. 630kW @ 415 VAC	890 x 770 x 315



SOFT STARTER



AC VOLTAGE REGULATOR

AC VOLTAGE REGULATOR

Technical Specifications	
Power/(current ratings) :	60 KW (105 A) & 180KW (250A) @ a typical supply of 415V RMS
Input voltage :	415 RMS +/- 10%
Frequency :	50/60Hz
Control input options :	0 to 10V dc (set as standard) / 0 to 5V using 10 K Potentiometer.
Operation modes :	Selection by input enable or auto (Burst Fire and Phase Angle).
Control Signal Logic :	5-24 VDC (Opto-isolated Inputs).
Soft Start :	0-30 Sec.
Load Option :	Resistive or Inductive.
Cooling Fan :	230 VAC fitted as standard – other options available.
Working Temperature :	0 - 55°C
Dimension :	240 (L) x 230 (H) x 250 (W) for 60KW for other KW rating it will customized
Weight :	6.5 Kg approx.

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REGD. / CORPORATE OFFICE : 139/141, Solaris 1, B-Wing, 1st Floor, Saki Vihar Road, Powai,
Andheri (East), Mumbai - 400 072, Maharashtra • Tel. : 022 - 2847 1956 / 57 / 58
E-mail : marketing@ruttonsha.com • Website: www.ruttonsha.com

FACTORY : 338, International House, Baska, Halol, Dist. Panchmahals, Pin - 389 350. Gujarat (India)
E-mail : adminbsk@ruttonsha.com